



1993

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

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1993

A set of classifications for R&D projects

IAN CASTLES
Australian Statistician

AUSTRALIAN BUREAU OF STATISTICS

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PREFACE

The Australian Standard Research Classification (ASRC) is the collective name given to a set of three related classifications designed for use in the measurement and analysis of research and experimental development (R&D) undertaken in Australia.

This edition of the ASRC has been prepared by the Australian Bureau of Statistics (ABS) in co-operation with the following organisations:

Australian Science and Technology Council
Australian Vice-Chancellors' Committee
Commonwealth Scientific and Industrial Research Organisation
Department of Employment, Education and Training
Department of the Environment, Sport and Territories
Department of Health
Department of Industry, Technology and Regional Development
Department of Primary Industries and Energy
The National Health and Medical Research Council

The contributions made by these organisations are gratefully acknowledged.

These classifications will be periodically reviewed with the next edition of this publication currently planned to be issued late in 1994.

IAN CASTLES
Australian Statistician
April 1993

CHAPTER 1: INTRODUCTION

Purpose of the ASRC

1. The Australian Standard Research Classification (ASRC) is the collective name given to a set of three related classifications developed for use in the measurement and analysis of research and experimental development (R&D) undertaken in Australia, both in the public and private sectors. It aims to facilitate the comparison of R&D data between sectors of the Australian economy (e.g. general government, private non-profit organisations, business enterprises and educational institutions).

2. In developing these classifications it is intended to ensure that R&D statistics are made useful to governments, educational institutions, international organisations, scientific, professional or business organisations, business enterprises, community groups and private individuals.

3. In order to support international comparisons, it is considered important for the classifications to relate to those used in other countries, particularly those whose stage of social and economic development is similar to that of Australia. Therefore, the definition, scope and classification of R&D activities contained in this publication have been largely devised in accordance with the Organisation for Economic Co-operation and Development (OECD) Proposed Standard Practice for Surveys of Research and Experimental Development, "FRASCATI MANUAL", Fifth Revision 1992.

4. Interim versions of the classifications contained in the ASRC have been used for the compilation of R&D statistics up to and including 1990-91. Details have been released in the following ABS publications: Research and Experimental Development, Business Enterprises (8104.0); Research and Experimental Development, General Government and Private Non-Profit Organisations (8109.0); Research and Experimental Development, Higher Education Organisations (8111.0); and Research and Experimental Development, All Sector Summary (8112.0).

5. The classifications in this publication are extensions and refinements of those earlier versions. The development of these current versions has been undertaken by the ABS in co-operation with major user and research organisations. This consultative process has sought to ensure that the ASRC is widely accepted and used within Australia as an Australian Standard, not only in the compilation of R&D statistics but also in the study of Australian research generally.

Classifications included in the Publication

6. There are three classifications in the ASRC, namely, Type of Activity Classification, Field of Research Classification and Socio-economic Objective Classification. These are used in official statistics to analyse the nature of R&D undertaken in Australia. The classifications are used in conjunction with industrial and institutional sector classifications to produce a set of official statistics which support a variety of user interests.

Type of Activity Classification (TOA)

7. This classification allows R&D activity to be categorised according to the type of research effort, namely, pure basic research, strategic basic research, applied research and experimental development.

8. Definitions and guidelines for classifying R&D by TOA are covered in Chapter 2.

Field of Research Classification (FOR)

9. This classification allows R&D activity to be categorised according to the field of research undertaken. In this respect, it is the nature of the R&D which is being examined. The classification is based primarily on recognised academic disciplines and evolving areas of study.

10. Explanatory notes, definitions and guidelines for classifying R&D data by field of research and the full classification are covered in Chapter 3.

Socio-economic Objective Classification (SEO)

11. This classification allows R&D to be categorised according to the purpose of the R&D as perceived by the data provider (researcher). It consists of discrete economic, social, technological or scientific domains for identifying the principal purpose of the R&D. The attributes applied to the design of the SEO Classification comprise a combination of processes, products, health, education and other social and environmental aspects of particular interest.

12. Explanatory notes, definitions and guidelines for classifying R&D by socio-economic objective and the full classification are covered in Chapter 4.

Advantages of the ASRC

13. The ASRC provides a three way matrix of classification. Each R&D activity can be classified by Type of Activity, Field of Research and Socio-economic Objective.

14. The ASRC provides a considerable degree of flexibility in meeting the needs of a wide variety of users. The hierarchical structure of both the FOR and SEO Classifications enables them to be applied to particular purposes at various levels, including the aggregation of data at the division, subdivision or group levels.

15. If the requirement is for general policy purposes, then a variety of approaches are available. For example, by using data compiled according to both the FOR and SEO Classifications, it is possible to identify how much R&D expenditure in any particular field of research has been devoted to a particular socio-economic objective. The ASRC helps classify multi-disciplinary work, where several disparate areas of the FOR are usually brought together to address one area, or closely related areas of the SEO.

16. The complexity of issues addressed by R&D is such that questions of public policy often arise in a manner which cannot be readily seen in advance. The detail available in both the FOR and SEO Classifications would be sufficient to facilitate the provision of statistics which can be used in a variety of contexts. For example, areas of key technological significance could generally be assessed using an aggregate of appropriate FOR groups or classes. It is possible therefore that the use of the ASRC for ABS R&D surveys may obviate or minimise the need for separate one-off R&D surveys aimed at narrow areas.

17. A particular strength of the ASRC is that it preserves comparability with much previous data in the ABS R&D series, while possessing a framework which enables comparisons with other classifications used nationally and internationally.

18. In the case of the FOR Classification, a concordance is available between the FOR and other comparable classification schemes used internationally. (See para. 16 on page 12.)

19. In the case of the SEO Classification, comparison is possible with Frascati Manual categories. (See page 61.) In addition, there is a strong alignment between the SEO and the Australian and New Zealand Standard Industrial Classification (ANZSIC). This is most applicable within the manufacturing subdivision of the SEO. Thus it is possible to correlate trends in industry with levels of R&D directed towards particular industries, by using both SEO and ANZSIC data.

Definition of Research and Experimental Development

20. R&D is defined according to the OECD standard as comprising creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.

21. An R&D activity is characterised by originality. It has investigation as a primary objective, the outcome of which is new knowledge, with or without a specific practical application, or new or improved materials, products, devices, processes or services. R&D ends when work is no longer primarily investigative.

Scope of Research and Experimental Development

22. As indicated in the FRASCATI Manual and as experience has shown, there are difficulties in delineating the point which clearly separates the culmination of R&D investigative work and the beginning of the implementation phase of the innovations or recommendations resulting from R&D. Errors at this point are particularly significant because, although R&D programmes require vast outlays of resources, the costs of implementing innovations or recommendations resulting from R&D are also often as high or higher.

23. There are also a wide range of scientific and related activities which are not R&D, but which are closely linked with R&D in terms of organisation, resource allocation, institutional affiliation and the use or flow of information. However, activities conducted solely or primarily for the purposes of R&D support are included in R&D.

24. The activities which have obscure boundaries with R&D are listed below.

(a) Education and training of personnel and students

Post graduate research including supervision of the research is considered to be R&D. The development of new teaching methods is also regarded as R&D. However, teaching and training students, using established methods and subject knowledge, is excluded.

(b) Specialised scientific and technical information services

Specialised scientific and technical information services which are undertaken solely in support of R&D are regarded as R&D. Examples of these are scientific data collection, coding, recording, classification, dissemination, translation, analysis and bibliographic services.

These specialised services are excluded if they are undertaken independently and not solely in support of R&D.

(c) General purpose or routine data collection

Collecting data in support of R&D work is included in R&D.

However, data collection of a general nature is excluded. This is normally carried out by government agencies to record natural, biological, economic or social phenomena of general

public or government interest. Examples are national population censuses, surveys of unemployment, topographical mapping and routine geographical surveys.

(d) Maintenance of national standards

Routine testing and analysis of materials, components, products, processes, soils, atmospheres, etc. for standard compliance is excluded from R&D.

(e) Feasibility studies

Feasibility studies undertaken in support of R&D are included.

However, a feasibility study which involves gathering information about existing conditions, for use in deciding whether or not to implement a project, is excluded, e.g. a study to determine the viability of a petrochemical complex in a particular location.

(f) Specialised medical care

R&D includes the development of new treatments and procedures, including such developments in conjunction with advanced medical care and examinations usually carried out by university hospitals.

However, routine investigations or normal application of specialised medical knowledge are excluded from R&D. Examples of these are pathology, forensic and post mortem procedures.

(g) Patent and licence work

Patent work connected directly with R&D projects is included in R&D. However, commercial, administrative and legal work associated with patenting, copywriting and licensing, are excluded.

(h) Policy related studies

The boundary between certain policy related studies as described in the Frascati Manual and R&D is complex. In the Frascati Manual, policy related studies cover activities such as the 'analysis and assessment of existing programmes, continued analysis and monitoring of external phenomena (e.g. defence and security analysis), legislative inquiry concerned with general government departmental policy or operations'. Rigour is required to separate policy related studies which are not R&D from bona fide R&D policy work.

Studies to determine the effects of a specific national policy to a particular economic or social condition or social group have elements of R&D. Routine management studies or efficiency studies are excluded.

(i) Marketing and market studies

Market research and opinion polls are excluded from R&D.

(j) Mineral exploration

The development of new or vastly improved methods of data acquisition, processing and interpretation of data is included as R&D. Surveying undertaken as an integral part of an

R&D project to observe geological phenomena is also regarded as R&D. However, the search for minerals using existing methods is excluded from R&D.

(k) Prototypes and pilot plants

The design, construction and testing of prototypes generally falls within the scope of R&D. However, trial production and copying of prototypes are excluded from R&D.

The construction and operation of pilot plants is part of R&D provided that these are used to obtain experience or new data for evaluating hypotheses.

Pilot plants are excluded as soon as the experimental phase is over or as soon as they are used as normal commercial production units even if they continue to be described as 'pilot plants'.

If a pilot plant is used for combined operations, the component used for R&D is to be estimated.

(l) Other activities

All other activities which are ancillary or consequential to R&D are excluded. Examples of these are interpretative commentary using existing data, forecasting, operations research as a contribution to decision making and the use of standard techniques in applied psychology to classify or diagnose human characteristics.

R&D Unit to be Classified

25. There are some inherent difficulties in formulating a definition of what it is that constitutes a unit of R&D. Because there is a lack of uniformity in organisational structures and considerable variance in the way organisations allocate resources to R&D activities, any standard definition of a unit of R&D seems certain to be somewhat theoretic. From a statistical viewpoint it is desirable that R&D expenditure be reported in the smallest cluster which can be classified to a single field of research and a single socio-economic objective. The extent to which it is not practicable to provide this detail will reduce the validity and usefulness of R&D statistics.

26. The most common real world references to an R&D unit whose activities are to be classified are Research Program and Research Project. However, these focal units would seldom approximate the idealised unit of R&D as outlined above. They may or may not correspond to actual organisational structures. In its most simple form, a Research Project may consist of a part of the time and energy of an unfunded or own account single entity (such as a PhD student).

27. There are Research Projects, especially in the social sciences, which require a multi-disciplinary approach in order to achieve a purpose. There are also Research Projects which consist of sub-projects. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) has cited a Research Project as often consisting of a set of sub-projects (staff) with a common purpose and one person designated as the project leader.

CHAPTER 2: TYPE OF ACTIVITY CLASSIFICATION (TOA)

Type of Activity

1. Four types of activity applicable to R&D are recognised in this classification:

- Pure basic research
- Strategic basic research
- Applied research
- Experimental development

2. Pure basic research is experimental and theoretical work undertaken to acquire new knowledge without looking for long term benefits other than the advancement of knowledge.

3. Strategic basic research is experimental and theoretical work undertaken to acquire new knowledge directed into specified broad areas in the expectation of useful discoveries. It provides the broad base of knowledge necessary for the solution of recognised practical problems.

4. Applied research is original work undertaken primarily to acquire new knowledge with a specific application in view. It is undertaken either to determine possible uses for the findings of basic research or to determine new ways of achieving some specific and predetermined objectives.

5. Experimental development is systematic work, using existing knowledge gained from research or practical experience, that is directed to producing new materials, products or devices, to installing new processes, systems and services, or to improving substantially those already produced or installed.

Guidelines for classifying R&D by TOA

6. A Research Project is to be classified under one type of activity. However, there are instances where a research project is large and could potentially be classifiable to more than one type, i.e. a project could have sub-projects with elements of both applied and experimental research. In this case, the proportion of resources attributable to each should be allocated to each type.

CHAPTER 3: FIELD OF RESEARCH CLASSIFICATION (FOR)

Nature and purpose of the FOR Classification

1. This classification allows R&D activity to be categorised according to the field of research undertaken. In this respect, it is the nature of the R&D itself which is being examined rather than the activity of the performing unit or the purpose of the R&D.
2. It consists of a set of discrete categories which identify such research fields. These fields include recognised academic disciplines and related major sub-fields taught at universities or tertiary institutions, major fields of research investigated by national research institutions and organisations, and emerging areas of study. It reflects the expansion of research activity particularly in information, computer and communication technologies, the applied sciences and technologies, the biological and other life sciences, mathematics, the social sciences and the humanities.
3. While this classification includes individual specialised fields of national interest, it generally reflects the overall structure of disciplinary fields.

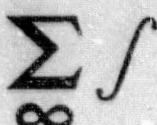
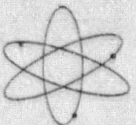
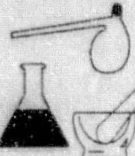
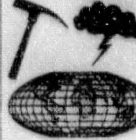






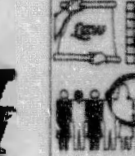
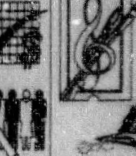
Structure of the FOR Classification

4. The classification has two divisions, namely Division 1 - Natural Sciences, Technologies and Engineering and Division 2 - Social Sciences and Humanities.
5. The classification is illustrated overleaf in Diagram 1 - Field of Research Classification. It is arranged in a hierarchical structure. It has 12 subdivisions, 86 groups and 486 classes.
6. The twelve subdivisions are:

010000	Mathematical Sciences
020000	Physical Sciences
030000	Chemical Sciences
040000	Earth Sciences
050000	Information, Computer and Communication Technologies
060000	Applied Sciences and Technologies
070000	General Engineering
080000	Biological Sciences
090000	Agricultural Sciences
100000	Medical and Health Sciences
110000	Social Sciences
120000	Humanities

7. Subdivisions, groups and classes are all assigned six-digit codes. Subdivisions are uniquely identified by the first two digits and the remainder of the code is zero filled. Groups are uniquely identified by the first four digits and the remainder of the code is zero filled. Classes have unique six-digit codes.
8. There are ninety-nine possible categories at the subdivision, group and class levels to allow for future expansion of the classification. The divisions are not reflected in the code system at the subdivision or finer levels.

Diagram 1: FIELD OF RESEARCH CLASSIFICATION

DIVISION 1: NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING (10 SUBDIVISIONS)										DIVISION 2: SOCIAL SCIENCES AND HUMANITIES (2 SUBDIVISIONS)	
MATHEMATICAL SCIENCES	PHYSICAL SCIENCES	CHEMICAL SCIENCES	EARTH SCIENCES	INFORMATION, COMPUTER AND COMMUNICATION TECHNOLOGIES	APPLIED SCIENCES AND TECHNOLOGIES	GENERAL ENGINEERING	BIOLOGICAL SCIENCES	AGRICULTURAL SCIENCES	MEDICAL AND HEALTH SCIENCES	SOCIAL SCIENCES	HUMANITIES
 <p>PURE MATHEMATICS - 6 Classes</p> <p>APPLIED MATHEMATICS - 5 Classes</p> <p>STATISTICS - 5 Classes</p> <p>OTHER MATHEMATICAL SCIENCES - 2 Classes</p>	 <p>ASTRONOMICAL SCIENCES - 3 Classes</p> <p>THEORETICAL AND CONDENSED MATTER PHYSICS - 2 Classes</p> <p>ATOMIC, MOLECULAR, NUCLEAR, PARTICLE AND PLASMA PHYSICS - 4 Classes</p> <p>ACOUSTIC AND OPTICAL PHYSICS - 4 Classes</p> <p>OTHER PHYSICAL SCIENCES - 4 Classes</p>	 <p>PHYSICAL CHEMISTRY (INCL. THEORETICAL AND STRUCTURAL) - 10 Classes</p> <p>INORGANIC CHEMISTRY - 5 Classes</p> <p>ORGANIC CHEMISTRY - 4 Classes</p> <p>ANALYTICAL CHEMISTRY - 4 Classes</p> <p>OTHER CHEMICAL SCIENCES - 4 Classes</p>	 <p>GEOLOGY - 15 Classes</p> <p>GEOPHYSICS - 8 Classes</p> <p>GEOCHEMISTRY - 5 Classes</p> <p>OCEANOGRAPHY - 4 Classes</p> <p>HYDROLOGY - 3 Classes</p> <p>ATMOSPHERIC SCIENCES - 4 Classes</p> <p>OTHER EARTH SCIENCES - 3 Classes</p>	 <p>INFORMATION SYSTEMS AND TECHNOLOGIES - 9 Classes</p> <p>COMPUTER HARDWARE - 6 Classes</p> <p>COMPUTER SOFTWARE - 2 Classes</p> <p>COMMUNICATION TECHNOLOGIES - 6 Classes</p> <p>OTHER INFORMATION, COMPUTER AND COMMUNICATION TECHNOLOGIES - 4 Classes</p>	 <p>AEROSPACE TECHNOLOGIES AND ENGINEERING - 5 Classes</p> <p>MANUFACTURING AND PROCESS TECHNOLOGIES AND ENGINEERING - 8 Classes</p> <p>INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES - 5 Classes</p> <p>MATERIAL SCIENCES AND TECHNOLOGIES - 12 Classes</p> <p>OTHER APPLIED SCIENCES AND TECHNOLOGIES - 4 Classes</p>	 <p>MECHANICAL AND INDUSTRIAL ENGINEERING - 2 Classes</p> <p>CHEMICAL ENGINEERING - 5 Classes</p> <p>MINING AND MINERAL PROCESSING - 5 Classes</p> <p>CIVIL ENGINEERING - 6 Classes</p> <p>ELECTRICAL AND ELECTRONIC ENGINEERING - 2 Classes</p> <p>OTHER GENERAL ENGINEERING - 4 Classes</p>	 <p>BIOCHEMISTRY - 4 Classes</p> <p>GENETICS, MOLECULAR BIOLOGY AND BIOTECHNOLOGY - 8 Classes</p> <p>MICROBIOLOGY - 4 Classes</p> <p>BOTANY - 4 Classes</p> <p>ZOOLOGY - 8 Classes</p> <p>OTHER BIOLOGICAL SCIENCES - 4 Classes</p>	 <p>SOIL AND WATER SCIENCES - 4 Classes</p> <p>CROP AND PASTURE PRODUCTION - 9 Classes</p> <p>HORTICULTURE - 5 Classes</p> <p>ANIMAL PRODUCTION - 7 Classes</p> <p>VETERINARY SCIENCES - 9 Classes</p> <p>FORESTRY SCIENCES - 7 Classes</p> <p>FISHERIES SCIENCES - 4 Classes</p> <p>OTHER AGRICULTURAL SCIENCES - 3 Classes</p>	 <p>IMMUNOLOGY - 7 Classes</p> <p>MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY - 4 Classes</p> <p>MEDICAL MICROBIOLOGY - 4 Classes</p> <p>PHARMACOLOGY - 4 Classes</p> <p>PHYSIOLOGY - 5 Classes</p> <p>NEUROSCIENCES - 6 Classes</p> <p>CLINICAL SCIENCES - 5 Classes</p> <p>PUBLIC HEALTH RESEARCH - 7 Classes</p> <p>HEALTH SERVICES RESEARCH - 4 Classes</p> <p>OTHER MEDICAL AND HEALTH SCIENCES - 3 Classes</p>	 <p>ACCOUNTING AND FINANCE - 4 Classes</p> <p>ECONOMICS - 13 Classes</p> <p>BUSINESS STUDIES - 4 Classes</p> <p>POLITICAL SCIENCE AND PUBLIC POLICY - 5 Classes</p> <p>ARCHITECTURE AND URBAN ENVIRONMENT - 4 Classes</p> <p>SOCIOLOGY - 4 Classes</p> <p>ANTHROPOLOGY - 3 Classes</p> <p>SOCIAL STUDIES - 4 Classes</p> <p>HUMAN GEOGRAPHY - 4 Classes</p> <p>POPULATION STUDIES - 3 Classes</p> <p>LAW - 7 Classes</p> <p>PSYCHOLOGY - 6 Classes</p> <p>EDUCATION - 7 Classes</p> <p>MEDIA AND COMMUNICATION STUDIES - 4 Classes</p> <p>OTHER SOCIAL SCIENCES - 1 Class</p>	 <p>LANGUAGE AND LITERATURE - 14 Classes</p> <p>HISTORICAL STUDIES - 9 Classes</p> <p>ARCHAEOLOGY AND CLASSICAL STUDIES - 4 Classes</p> <p>ARTS - 4 Classes</p> <p>DESIGN STUDIES - 5 Classes</p> <p>PHILOSOPHY - 5 Classes</p> <p>RELIGIOUS STUDIES - 1 Class</p> <p>HISTORY AND SUBSIDIARY OF SCIENCE AND MEDICINE - 2 Classes</p> <p>OTHER HUMANITIES - 1 Class</p>

Source: Department of Industry, Technology and Regional Development
 Science and Technology Policy Branch 1993
 Enquiries: Stephen Utick (06) 2761252

Guidelines for classifying R&D by FOR

9. The FOR has been designed to provide uniformity at the Group level. Whereas the classes within Groups have often been formed according to a number of specialisations in the overall field of research and according to other features, such as the type of environment, the titles of the Groups themselves reflect commonly accepted terminology as used by scientists in the particular fields.

10. Users should exercise a degree of care in selecting appropriate classes within the FOR. Where a class reflects a particular scientific specialisation, all research relating to that specialised field is generally to be classified to the particular class. For example, in Group 080400 Botany, all taxonomic research on fungi is to be classified to mycology rather than plant taxonomy. Another example concerns Group 080500 Zoology, wherein all physiological research on insects is to be classified to entomology rather than physiology. A further example concerns Group 090300 Horticulture, wherein all research into table grapes is to be classified to oenology and viticulture rather than fruit crops. Where applicable, these treatments are indicated in the FOR definitions.

11. The following general procedures are aimed to ensure consistent and successful classification of R&D data.

12. A Research Project is to be allocated to a FOR class in a hierarchical manner. This is achieved by first determining the FOR division in which the research is being performed, then the most relevant subdivision within that division, then the most relevant group within that subdivision and finally by selecting the most relevant class within a chosen group.

13. It is vital to firstly identify the higher level classifications for the Research Project as some classes, although within different groups, have identical class titles.

14. In general, a Research Project is to be classified to one class only. There are cases however where a Research Project is large and conducted in more than one field of research (e.g. multi-disciplinary research). In such cases, the aim would be to dissect the R&D resources into sub-projects and report separate classes for each. The allocation should be based on the resources devoted to each project or sub-project.

Comparison with other field of research classifications

15. The FOR is compared with three other major field of research classifications:

- . the European Economic Community (EEC) Sciences Classification, a three level classification used within certain member countries of the EEC, particularly in Belgium;
- . the OECD (Frascati) Science and Technology Classification, a two level classification incorporated into the fifth revision of the OECD Proposed Standard Practice for Surveys of Research and Experimental Development, "Frascati Manual" and which is a revision of a classification of Fields of Science and Technology adopted by the UNESCO; and
- . the US National Science Foundation (NSF) Classification, a two level classification utilised by that Foundation in the measurement of national science indicators, which has been developed as the need for indicators has grown.

16. Diagram 2 overleaf shows the broad relationship between the Australian FOR and other classifications at their highest level. The FOR has more subdivisions than either the EEC or Frascati Classifications, and disaggregates a broader range of research disciplines at this level than the NSF Classification. Detailed differences are as follows:

(i) European Economic Community (EEC) Sciences Classification

The FOR Classification effectively subdivides the exact sciences of the EEC Classification into four subdivisions, the technological sciences into two subdivisions and the biomedical sciences into three subdivisions.

The EEC Classification covers only a portion of the FOR subdivision on information, computer and communication technologies and divides this between the exact sciences and technological sciences. Social sciences of the EEC Classification exclude both architecture and physical anthropology and the category humanities does not include design studies.

There is a general similarity between the FOR and EEC Classifications at the subdivision level allowing for the disaggregation represented in the FOR Classification. Nearly all of the second and third level categories of the EEC Classification have corresponding categories in the FOR, although not necessarily in the same structural relation.

(ii) OECD (Frascati) Science and Technology Classification

The FOR Classification effectively subdivides the natural sciences of the Frascati Classification into five subdivisions and its engineering and technology into two.

The Frascati Classification covers only a portion of the FOR subdivision on information, computer and communication technologies and divides this between the natural sciences and engineering and technology. Apart from this there is a close correlation at the subdivision level between the FOR and Frascati Classifications.

However, as with the EEC Classification, the Frascati social sciences exclude both architecture and physical anthropology, and humanities does not include design studies.

The Frascati Classification has 24 low level categories and most of these correspond with either a group or class of the FOR.

(iii) US National Science Foundation (NSF) Classification

The FOR Classification effectively subdivides the NSF categories for the physical sciences and life sciences into a number of finer categories.

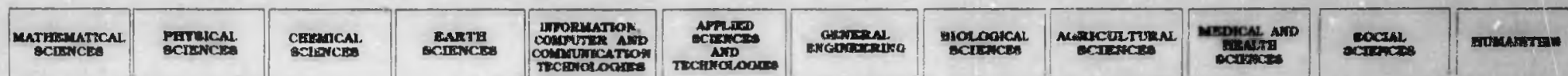
Unlike the other classifications, the NSF Classification places astronomy and astrophysics in the environmental sciences (the equivalent of earth sciences in the FOR Classification).

The FOR Classification in effect places six NSF engineering fields in two subdivisions covering the applied sciences and technologies and general engineering. The FOR Classification includes psychology within the social sciences subdivision whereas the NSF Classification provides this in a separate division.

All 14 categories and 26 sub-categories in the NSF Classification have corresponding categories in the subdivision, group or class levels of the FOR Classification.

Diagram 2: COMPARISON OF FIELD OF RESEARCH CLASSIFICATIONS

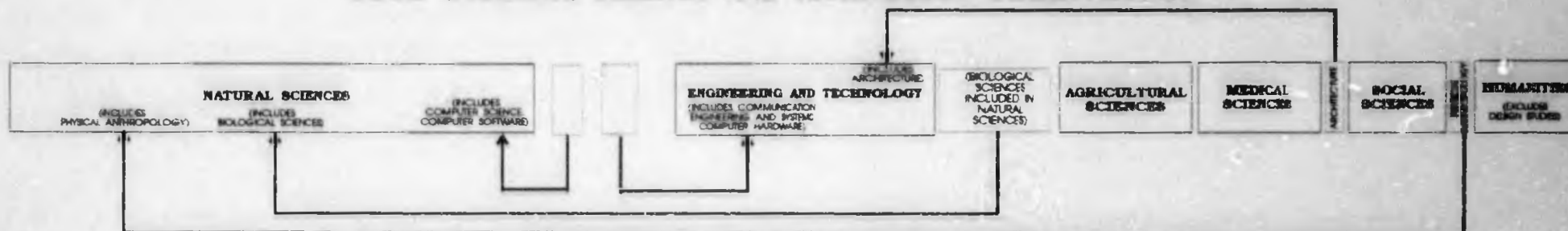
ASRC FIELD OF RESEARCH - 12 SUBDIVISIONS



EEC SCIENCES CLASSIFICATION



OECD (FRASCATI) SCIENCE AND TECHNOLOGY CLASSIFICATION



U.S. NATIONAL SCIENCE FOUNDATION



AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

FIELD OF RESEARCH

CLASSIFICATION

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION		
FIELD OF RESEARCH		
DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING		
Group	Class	Title
<hr/>		
SUBDIVISION	010000	MATHEMATICAL SCIENCES
010100		PURE MATHEMATICS
	010101	Mathematical Logic, Set Theory, Number Theory, Group Theory
	010102	Algebraic Structures
	010103	Approximation Theory, Fourier Analysis, Harmonic Analysis, Potential Theory
	010104	Functional Theory, Operator Theory
	010105	Geometry, Topology
	010199	Pure Mathematics n.e.c.
010200		APPLIED MATHEMATICS
	010201	Numerical Analysis, Theory of Computation, Analysis of Algorithms
	010202	Differential Equations, Integral Equations
	010203	Optimisation, Control Theory
	010204	Classical Mechanics, Fluids, Optics, Electromagnetism
	010299	Applied Mathematics n.e.c.
010300		STATISTICS
	010301	Probability Theory
	010302	Stochastic Modelling and Analysis
	010303	Statistical Theory
	010304	Applied Statistics
	010399	Statistics n.e.c.
019900		OTHER MATHEMATICAL SCIENCES
	019901	Biomathematics
	019999	Mathematical Sciences n.e.c.
SUBDIVISION	020000	PHYSICAL SCIENCES
020100		ASTRONOMICAL SCIENCES
	020101	Astronomy and Astrophysics
	020102	Cosmic Ray Physics
	020199	Astronomical Sciences n.e.c.
020200		THEORETICAL AND CONDENSED MATTER PHYSICS
	020201	Theoretical Physics
	020202	Condensed Matter Physics
020300		ATOMIC, MOLECULAR, NUCLEAR, PARTICLE AND PLASMA PHYSICS
	020301	Atomic and Molecular Physics
	020302	Fluids, Plasmas and Electrical Discharges
	020303	Nuclear and Particle Physics
	020399	Atomic, Molecular, etc. Physics n.e.c.
020400		ACOUSTIC AND OPTICAL PHYSICS
	020401	Acoustics and Opto acoustical Physics
	020402	Optical and Opto electrical Physics
	020403	Quantum Optics
	020499	Acoustic and Optical Physics n.e.c.
029900		OTHER PHYSICAL SCIENCES
	029901	Biophysics
	029902	Medical Physics
	029903	Instruments and Techniques
	029999	Physical Sciences n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH
DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

Group	Class	Title
SUBDIVISION	030000	CHEMICAL SCIENCES
030100		PHYSICAL CHEMISTRY (INCL. THEORETICAL AND STRUCTURAL)
030101		Chemical Thermodynamics and Energetics
030102		Chemistry of Catalysis
030103		Polymer Chemistry
030104		Colloid and Surface Chemistry
030105		Chemical Spectroscopy
030106		Structural Chemistry
030107		Mechanisms of Reactions
030108		Theoretical Chemistry
030109		Electrochemistry
030199		Physical Chemistry n.e.c.
030200		INORGANIC CHEMISTRY
030201		Transition Metal Chemistry
030202		Main Group Chemistry
030203		Solid State Chemistry
030204		Bioinorganic Chemistry
030299		Inorganic Chemistry n.e.c.
030300		ORGANIC CHEMISTRY
030301		Organic Chemical Synthesis
030302		Biological and Medical Chemistry
030303		Physical Organic Chemistry
030399		Organic Chemistry n.e.c.
030400		ANALYTICAL CHEMISTRY
030401		Instrumentational Methods
030402		Chemical and Physical Methods
030403		Immunological and Bioassay Methods
030499		Analytical Chemistry n.e.c.
039900		OTHER CHEMICAL SCIENCES
039901		Organometallic Chemistry
039902		Environmental Chemistry (incl. Atmospheric Chemistry)
039903		Industrial Chemistry
039999		Chemical Sciences n.e.c.
SUBDIVISION	040000	EARTH SCIENCES
040100		GEOLOGY
040101		Mineralogy and Crystallography
040102		Igneous and Metamorphic Petrology
040103		Vulcanology
040104		Sedimentology
040105		Petroleum Geology
040106		Ore Deposit Petrology
040107		Structural Geology
040108		Geotectonics
040109		Geochronology
040110		Biostratigraphy
040111		Palaeontology
040112		Palynology
040113		Geomorphology
040114		Glaciology
040199		Geology n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

FIELD OF RESEARCH

DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

Group	Class	Title
SUBDIVISION	040000	EARTH SCIENCES -- continued
040200		GEOPHYSICS
	040201	Gravity
	040202	Geomagnetism
	040203	Electromagnetism
	040204	Petrophysics
	040205	Explosion Seismology and Stratigraphy
	040206	Earthquake Seismology
	040207	Radiometrics
	040299	Geophysics n.e.c.
040300		GEOCHEMISTRY
	040301	Geochronology and Isotope Geochemistry
	040302	Exploration Geochemistry
	040303	Organic Geochemistry n.e.c.
	040304	Inorganic Geochemistry n.e.c.
	040399	Geochemistry n.e.c.
040400		OCEANOGRAPHY
	040401	Biological Oceanography
	040402	Chemical Oceanography
	040403	Physical Oceanography
	040499	Oceanography n.e.c.
040500		HYDROLOGY
	040501	Groundwater Hydrology
	040502	Surfacewater Hydrology
	040599	Hydrology n.e.c.
040600		ATMOSPHERIC SCIENCES
	040601	Meteorology
	040602	Climatology (incl. Palaeoclimatology)
	040603	Ionospheric and Magnetospheric Physics
	040699	Atmospheric Sciences n.e.c.
049900		OTHER EARTH SCIENCES
	049901	Physical Geography
	049902	Environmental Management and Rehabilitation
	049999	Earth Sciences n.e.c.
SUBDIVISION	050000	INFORMATION, COMPUTER AND COMMUNICATION TECHNOLOGIES
050100		INFORMATION SYSTEMS AND TECHNOLOGIES
	050101	Computer Systems Organisation
	050102	Information Systems Management
	050103	Artificial Intelligence and Expert Systems
	050104	Parallel Processing and Architecture
	050105	Computer Graphics
	050106	Image Processing
	050107	Speech Recognition
	050108	Cognitive Science
	050199	Information Systems and Technologies n.e.c.
050200		COMPUTER HARDWARE
	050201	Arithmetic and Logic Structures
	050202	Memory Structures
	050203	Input, Output and Data Communications
	050204	Logic Design
	050205	Integrated Circuits
	050299	Computer Hardware n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION		
FIELD OF RESEARCH		
DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING		
Group	Class	Title
SUBDIVISION	050000	INFORMATION, COMPUTER AND COMMUNICATION TECHNOLOGIES -- continued
050300		COMPUTER SOFTWARE
	050301	Programming Techniques
	050302	Software Engineering
	050303	Computer Languages
	050304	Operating Systems
	050399	Computer Software n.e.c.
050400		COMMUNICATION TECHNOLOGIES
	050401	Antenna Technology
	050402	Optical and Photonic Systems
	050403	Digital Systems
	050404	Radio Communications and Broadcasting n.e.c.
	050405	Microwave and Millimetrewave Technology
	050499	Communication Technologies n.e.c.
059900		OTHER INFORMATION, COMPUTER AND COMMUNICATION TECHNOLOGIES
	059901	Mathematics of Computing
	059902	Computer-Human Interface
	059903	Virtual Reality and Related Simulation
	059999	Information, Computer and Communication Technologies n.e.c.
SUBDIVISION	060000	APPLIED SCIENCES AND TECHNOLOGIES
060100		AEROSPACE TECHNOLOGIES AND ENGINEERING
	060101	Avionics
	060102	Aeronautical Engineering
	060103	Remote Sensing
	060104	Satellite Technology
	060199	Aerospace Technologies and Engineering n.e.c.
060200		MANUFACTURING AND PROCESS TECHNOLOGIES AND ENGINEERING
	060201	Robotics and Mechatronics
	060202	Flexible Manufacturing Systems
	060203	CAD/CAM Systems
	060204	Control Engineering
	060205	Welding Sciences
	060206	Textile Technology
	060207	Membrane and Separation Technologies
	060299	Manufacturing and Process Technologies and Engineering n.e.c.
060300		INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES
	060301	Fermentation, Biotechnology and Industrial Microbiology
	060302	Packaging, Storage and Transportation
	060303	Safety and Quality
	060304	Food Engineering
	060305	Food Processing
	060399	Industrial Biotechnology and Food Sciences n.e.c.
060400		MATERIAL SCIENCES AND TECHNOLOGIES
	060401	Pyrometallurgy
	060402	Hydrometallurgy
	060403	Extractive Metallurgy n.e.c.
	060404	Physical Metallurgy
	060405	Ceramics
	060406	Polymer and Textile Compounds
	060407	Composite Materials
	060408	Alloy Materials
	060409	Optical Materials
	060410	Biomaterials
	060411	Superconducting Materials
	060499	Material Sciences and Technologies n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

FIELD OF RESEARCH

DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

Group	Class	Title
SUBDIVISION	060000	APPLIED SCIENCES AND TECHNOLOGIES -- continued
	069900	OTHER APPLIED SCIENCES AND TECHNOLOGIES
	069901	Building Science
	069902	Laser Technology
	069903	Biosensor Technologies
	069999	Applied Sciences and Technologies n.e.c.
SUBDIVISION	070000	GENERAL ENGINEERING
	070100	MECHANICAL AND INDUSTRIAL ENGINEERING
	070101	Mechanical Engineering
	070102	Industrial Engineering
	070200	CHEMICAL ENGINEERING
	070201	Chemical Engineering Design
	070202	Process Control and Simulation
	070203	Fluidization and Fluid Mechanics
	070204	Heat and Mass Transfer Operations
	070299	Chemical Engineering n.e.c.
	070300	MINING AND MINERAL PROCESSING
	070301	Mining Engineering
	070302	Mineral Processing
	070303	Petroleum and Reservoir Engineering
	070304	Geomechanics
	070399	Mining and Mineral Processing n.e.c.
	070400	CIVIL ENGINEERING
	070401	Structural Engineering
	070402	Surveying
	070403	Water and Sanitary Engineering
	070404	Transport Engineering
	070405	Agricultural Engineering
	070499	Civil Engineering n.e.c.
	070500	ELECTRICAL AND ELECTRONIC ENGINEERING
	070501	Electrical Engineering (General)
	070502	Electronic Engineering
	079900	OTHER GENERAL ENGINEERING
	079901	Biomedical Engineering
	079902	Power Engineering
	079903	Combustion and Fuel Engineering
	079999	General Engineering n.e.c.
SUBDIVISION	080000	BIOLOGICAL SCIENCES
(Note: R&D undertaken in association with health and medicine is to be classified in Division 100000 Medical and Health Sciences.)		
	080100	BIOCHEMISTRY
	080101	Biochemistry of Nucleic Acids
	080102	Biochemistry of Proteins and Peptides
	080103	Biochemistry of Carbohydrates
	080104	Biochemistry of Lipids
	080105	Biosynthetic Pathways
	080199	Biochemistry n.e.c.
	080200	GENETICS, MOLECULAR BIOLOGY AND BIOTECHNOLOGY
	080201	Molecular Genetics
	080202	Cytogenetics
	080203	Population Genetics
	080204	Genetic Engineering: Gene Probes
	080205	Genetic Engineering: Recombinant DNA Techniques
	080206	Genetic Engineering n.e.c.
	080207	Molecular Cell Biology
	080299	Genetics, Molecular Biology and Biotechnology n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION		
FIELD OF RESEARCH		
DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING		
Group	Class	Title
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SUBDIVISION	080000	BIOLOGICAL SCIENCES -- continued
080300		MICROBIOLOGY
	080301	Bacteriology
	080302	Parasitology
	080303	Virology
	080399	Microbiology n.e.c.
080400		BOTANY
	080401	Plant Taxonomy
	080402	Plant Physiology
	080403	Mycology
	080404	Plant Pathology
	080405	Phycology
	080499	Botany n.e.c.
080500		ZOOLOGY
	080501	Animal Taxonomy
	080502	Neurobiology
	080503	Physiology
	080504	Immunology
	080505	Anatomy and Histology
	080506	Ethology
	080507	Entomology
	080599	Zoology n.e.c.
080600		ECOLOGY
	080601	Freshwater Ecology (excl. Limnology)
	080602	Limnology
	080603	Marine Ecology
	080604	Terrestrial Ecology
	080605	Palaeoecology
	080699	Ecology n.e.c.
089900		OTHER BIOLOGICAL SCIENCES
	089901	Evolutionary Biology
	089902	Cell Structure and Membrane Biology
	089903	Marine Biology (incl. Marine Ichthyology)
	089999	Biological Sciences n.e.c.
SUBDIVISION	090000	AGRICULTURAL SCIENCES
090100		SOIL AND WATER SCIENCES
	090101	Soil Physics
	090102	Soil Biology
	090103	Soil Chemistry
	090104	Soil and Land Degradation
	090105	Applied Hydrology (Drainage, Flooding, Irrigation, Quality, etc.)
	090199	Soil and Water Sciences n.e.c.
090200		CROP AND PASTURE PRODUCTION
	090201	Crop and Pasture Physiology
	090202	Crop and Pasture Nutrition
	090203	Crop and Pasture Pathology
	090204	Plant Breeding
	090205	Plant Protection (Pests and Pathogens)
	090206	Agronomy
	090207	Post Harvest Technologies (Transportation and Storage)
	090208	Weed Sciences
	090299	Crop and Pasture Production n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

FIELD OF RESEARCH

DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

Group	Class	Title
SUBDIVISION	090000	AGRICULTURAL SCIENCES -- continued
090300		HORTICULTURE
	090301	Fruit Crops
	090302	Floriculture and Ornamental Horticulture
	090303	Oenology and Viticulture
	090304	Vegetable Culture
	090399	Horticulture n.e.c.
090400		ANIMAL PRODUCTION
	090401	Animal Breeding
	090402	Animal Reproduction
	090403	Animal Nutrition
	090404	Animal Husbandry
	090405	Animal Protection (Pests and Pathogens)
	090406	Animal Growth and Development
	090499	Animal Production n.e.c.
090500		VETERINARY SCIENCES
	090501	Epidemiology
	090502	Physiology
	090503	Pathology
	090504	Bacteriology
	090505	Parasitology
	090506	Virology
	090507	Surgery
	090508	Pharmacology
	090599	Veterinary Sciences n.e.c.
090600		FORESTRY SCIENCES
	090601	Breeding
	090602	Pests, Health and Diseases
	090603	Management and Environment
	090604	Fire Management
	090605	Wildlife and Habitat Management
	090606	Agroforestry
	090699	Forestry Sciences n.e.c.
090700		FISHERIES SCIENCES
	090701	Marine Fisheries
	090702	Marine Aquaculture
	090703	Inland Water Fisheries and Aquaculture
	090799	Fisheries Sciences n.e.c.
099900		OTHER AGRICULTURAL SCIENCES
	099901	Fertilisers and Agrochemicals (Application etc.)
	099902	Agricultural Systems and Farm Management
	099999	Agricultural Sciences n.e.c.
SUBDIVISION	100000	MEDICAL AND HEALTH SCIENCES
(Note: Only R&D which is directly relevant to health and medicine is to be classified in Subdivision 100000 Medical and Health Sciences. See also Division 080000 Biological Sciences.)		
100100		IMMUNOLOGY
	100101	Allergy
	100102	Cellular Immunology
	100103	Humoral Immunology and Immunochemistry
	100104	Immunogenetics
	100105	Transplantation Immunology
	100106	Tumor Immunology
	100199	Immunology n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

FIELD OF RESEARCH

DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

Group	Class	Title
SUBDIVISION	100000	MEDICAL AND HEALTH SCIENCES -- continued
100200		MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY
	100201	Clinical Chemistry
	100202	Medical Biochemistry: Carbohydrates
	100203	Medical Biochemistry: Lipids
	100204	Medical Biochemistry: Nucleic Acids
	100205	Medical Biochemistry: Proteins and Peptides
	100299	Medical Biochemistry and Clinical Chemistry n.e.c.
100300		MEDICAL MICROBIOLOGY
	100301	Bacteriology
	100302	Parasitology
	100303	Virology
	100399	Medical Microbiology n.e.c.
100400		PHARMACOLOGY
	100401	Basic Pharmacology
	100402	Clinical Pharmacology and Therapeutics
	100403	Toxicology
	100499	Pharmacology n.e.c.
100500		PHYSIOLOGY
	100501	Human Biophysics
	100502	Cell Physiology
	100503	Systems Physiology
	100504	Comparative Physiology
	100599	Physiology n.e.c.
100600		NEUROSCIENCES
	100601	Autonomic Nervous System
	100602	Central Nervous System
	100603	Peripheral Nervous System
	100604	Cellular Nervous System
	100605	Sensory Systems
	100699	Neurosciences n.e.c.
100700		CLINICAL SCIENCES
	100701	Anaesthesia
	100702	Dermatology
	100703	Cardiology
	100704	Dentistry and Oral Surgery
	100705	Endocrinology
	100706	Foetal Development and Medicine
	100707	Gastroenterology and Hepatology
	100708	Geriatrics
	100709	Haematology
	100710	Intensive Care
	100711	Infectious Diseases
	100712	Medical Genetics
	100713	Nephrology and Urology
	100714	Neurology and Neuromuscular Diseases
	100715	Obstetrics and Gynaecology
	100716	Oncology and Carcinogenesis
	100717	Ophthalmology and Optometry
	100718	Orthopaedics
	100719	Otolaryngology
	100720	Paediatrics and Child Health
	100721	Pathology
	100722	Psychiatry
	100723	Psychology - Clinical

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH
DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

Group	Class	Title
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100700		CLINICAL SCIENCES -- continued
	100724	Radiology and Organ Imaging
	100725	Radiotherapy and Nuclear Medicine
	100726	Rehabilitation and Therapy: Occupational and Physical
	100727	Rehabilitation and Therapy: Hearing and Speech
	100728	Reproduction
	100729	Respiratory Diseases
	100730	Rheumatology and Arthritis
	100731	Surgery
	100732	Venereology
	100799	Clinical Sciences n.e.c.
100800		PUBLIC HEALTH RESEARCH
	100801	Environmental and Occupational Health and Safety
	100802	Epidemiology and Health Information Systems
	100803	Mental Health
	100804	Nutrition
	100805	Preventive Medicine
	100806	Primary Health Care
	100899	Public Health Research n.e.c.
100900		HEALTH SERVICES RESEARCH
	100901	Human Bioethics
	100902	Health and Community Services Research and Evaluation
	100903	Health Care Administration
	100904	Health Education and Promotion
	100905	Nursing
	100999	Health Services Research n.e.c.
109900		OTHER MEDICAL AND HEALTH SCIENCES
	109901	Biomechanics
	109902	Medical Biotechnology
	109999	Medical and Health Sciences n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

FIELD OF RESEARCH

DIVISION 2 SOCIAL SCIENCES AND HUMANITIES

Group	Class	Title
SUBDIVISION	110000	SOCIAL SCIENCES
110100		ACCOUNTING AND FINANCE
	110101	Financial and Management Accounting
	110102	Auditing and Accountability
	110103	Finance
	110199	Accounting and Finance n.e.c.
110200		ECONOMICS
	110201	Economic Theory
	110202	Economic History and Political Economy
	110203	International Economics
	110204	Monetary and Fiscal Theory
	110205	Welfare Economics
	110206	Health Economics
	110207	Labour Economics
	110208	Industry and Resource Economics
	110209	Agricultural Economics
	110210	Econometrics
	110211	Economic Models and Forecasting
	110212	Environment Economics
	110299	Economics n.e.c.
110300		BUSINESS STUDIES
	110301	Business Management
	110302	Industrial Relations
	110303	Marketing
	110399	Business Studies n.e.c.
110400		POLITICAL SCIENCES AND PUBLIC POLICY
	110401	Political Science
	110402	Public Policy and Administration
	110403	International Relations
	110404	Science and Technology Policy
	110499	Political Sciences and Public Policy n.e.c.
110500		ARCHITECTURE AND URBAN ENVIRONMENT
	110501	Architecture
	110502	Urban Planning
	110503	Heritage and Conservation
	110599	Architecture and Urban Environment n.e.c.
110600		SOCIOLOGY
	110601	Social Theory and Policy
	110602	Race and Ethnic Relations
	110603	Criminology
	110699	Sociology n.e.c.
110700		ANTHROPOLOGY
	110701	Prehistory and Physical Anthropology
	110702	Aboriginal Anthropology
	110799	Anthropology n.e.c.
110800		SOCIAL STUDIES
	110801	Women's Studies
	110802	Urban and Regional Studies
	110803	Social Work and Administration
	110899	Social Studies n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION		
FIELD OF RESEARCH		
DIVISION 2 SOCIAL SCIENCES AND HUMANITIES		
Group	Class	Title
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SUBDIVISION	110000	SOCIAL SCIENCES -- continued
110900		HUMAN GEOGRAPHY
	110901	Economic Geography
	110902	Social and Cultural Geography
	110903	Recreation and Leisure Studies
	110999	Human Geography n.e.c.
111000		POPULATION STUDIES
	111001	Population Trends and Policies (incl. Fertility and Mortality)
	111002	Migration
	111099	Population Studies n.e.c.
111100		LAW
	111101	Constitutional and Administrative Law
	111102	Jurisprudence and Legal History
	111103	Family Law
	111104	Commercial and Contracts Law
	111105	International Law
	111106	Criminal Law
	111199	Law n.e.c.
111200		PSYCHOLOGY
	111201	Cognition, Motivation and Performance
	111202	Learning, Memory and Perception
	111203	Biological Psychology, Neuropsychology and Psychopharmacology
	111204	Personality, Abilities and Assessment
	111205	Social and Organisational Psychology
	111206	Developmental Psychology and Ageing
	111207	Quantitative Psychology and Methodology
	111299	Psychology n.e.c.
111300		EDUCATION
	111301	Educational Psychology and Curriculum Development
	111302	History and Philosophy of Education
	111303	Sociology of Education
	111304	Post Secondary Education
	111305	Teacher Education
	111306	Educational Administration and Theory
	111399	Education n.e.c.
111400		MEDIA AND COMMUNICATION STUDIES
	111401	Media Studies
	111402	Journalism
	111403	Librarianship and Information Studies
	111499	Media and Communication Studies n.e.c.
119900		OTHER SOCIAL SCIENCES
	119999	Other Social Sciences

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

FIELD OF RESEARCH

DIVISION 2 SOCIAL SCIENCES AND HUMANITIES

Group	Class	Title
SUBDIVISION	120000	HUMANITIES
120100		LANGUAGE AND LITERATURE
	120101	Literary Studies: Australian
	120102	Literary Studies: Asian and Pacific
	120103	Literary Studies: British
	120104	Literary Studies: European
	120105	Literary Studies: North American
	120106	Literary Theory and Genre Studies
	120107	Literary Studies n.e.c.
	120108	Lexicography
	120109	Applied Linguistics
	120110	Semantics
	120111	Linguistics: Studies of Australian Aboriginal Languages
	120112	Linguistics: Other Australian Studies
	120113	Linguistics n.e.c.
	120199	Language and Literature n.e.c.
120200		HISTORICAL STUDIES
	120201	History: Australian
	120202	History: Asian and the Pacific
	120203	History: American
	120204	History: British
	120205	History: European
	120206	History: Middle Eastern
	120207	History: Other
	120208	Biography
	120299	Historical Studies n.e.c.
120300		ARCHAEOLOGY AND CLASSICAL STUDIES
	120301	Archaeology
	120302	Egyptology
	120303	Greek and Roman Classical Studies
	120399	Classical Studies n.e.c.
120400		ARTS
	120401	Music
	120402	Fine Arts
	120403	Drama
	120499	Arts n.e.c.
120500		DESIGN STUDIES
	120501	Design History and Conservation
	120502	Design Theory
	120503	Design Innovation
	120504	Design Management and Practice
	120599	Design Studies n.e.c.
120600		PHILOSOPHY
	120601	Logic
	120602	Metaphysics
	120603	Ethics
	120604	Social and Applied Philosophy
	120699	Philosophy n.e.c.
120700		RELIGIOUS STUDIES
	120701	Religious Studies
120800		HISTORY AND PHILOSOPHY OF SCIENCE AND MEDICINE
	120801	History and Philosophy of Science
	120802	History and Philosophy of Medicine
129900		OTHER HUMANITIES
	129999	Other Humanities

DEFINITIONS

DIVISION 1 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

This division covers R&D in natural sciences, technologies and engineering.

This division has ten subdivisions:

- 010000 Mathematical Sciences
- 020000 Physical Sciences
- 030000 Chemical Sciences
- 040000 Earth Sciences
- 050000 Information, Computer and Communication Technologies
- 060000 Applied Sciences and Technologies
- 070000 General Engineering
- 080000 Biological Sciences
- 090000 Agricultural Sciences
- 100000 Medical and Health Sciences

SUBDIVISION 010000 MATHEMATICAL SCIENCES

This subdivision covers R&D in pure mathematics, applied mathematics and statistics.

This subdivision has four groups:

- 010100 Pure Mathematics
- 010200 Applied Mathematics
- 010300 Statistics
- 019900 Other Mathematical Sciences

Exclusions: R&D in (a) mathematics associated with computer science is included in Subdivision 050000 Information, Computer and Communication Technologies; and (b) mathematics and statistics applied in economics is included in Subdivision 110000 Social Sciences.

GROUP 010100 PURE MATHEMATICS

This group covers R&D in pure mathematics.

This group has six classes:

- 010101 Mathematical Logic, Set Theory, Number Theory, Group Theory
- 010102 Algebraic Structures
- 010103 Approximation Theory, Fourier Analysis, Harmonic Analysis, Potential Theory
- 010104 Functional Theory, Operator Theory
- 010105 Geometry, Topology
- 010199 Pure Mathematics n.e.c.

GROUP 010200 APPLIED MATHEMATICS

This group covers R&D in applied mathematics.

This group has five classes:

- 010201 Numerical Analysis, Theory of Computation, Analysis of Algorithms
- 010202 Differential Equations, Integral Equations
- 010203 Optimisation, Control Theory
- 010204 Classical Mechanics, Fluids, Optics, Electromagnetism
- 010299 Applied Mathematics n.e.c.

GROUP 010300 STATISTICS

This group covers R&D in statistics.

This group has five classes:

- 010301 Probability Theory
- 010302 Stochastic Modelling and Analysis
- 010303 Statistical Theory
- 010304 Applied Statistics
- 010399 Statistics n.e.c.

Exclusions: R&D in econometrics is included in Group 110200 Economics.

GROUP 019900 OTHER MATHEMATICAL SCIENCES

This group covers any residual R&D in the mathematical sciences not elsewhere classified.

This group has two classes:

- 019901 Biomathematics
- 019999 Mathematical Sciences n.e.c.

SUBDIVISION 020000 PHYSICAL SCIENCES

This subdivision covers R&D in the physical sciences.

It includes R&D in biophysics (other than human biophysics) and medical physics.

This subdivision has five groups:

- 020100 Astronomical Sciences
- 020200 Theoretical and Condensed Matter Physics
- 020300 Atomic, Molecular, Nuclear, Particle and Plasma Physics
- 020400 Acoustic and Optical Physics
- 029900 Other Physical Sciences

Exclusions: R&D in (a) geophysics is included in Group 040200 Geophysics; (b) ionospheric and magnetospheric physics is included in Group 040600 Atmospheric Sciences; (c) technological aspects of the physical sciences is included in the appropriate groups in Subdivision 060000 Applied Sciences and Technologies; (d) soil physics is included in Group 090100 Soil and Water Sciences; and (e) human biophysics is included in Group 100500 Physiology.

GROUP 020100 ASTRONOMICAL SCIENCES

This group covers R&D in astronomical sciences.

This group has three classes:

- 020101 Astronomy and Astrophysics
- 020102 Cosmic Ray Physics
- 020199 Astronomical Sciences n.e.c.

Exclusions: R&D in remote sensing and satellite technology is included in Group 060100 Aerospace Technologies and Engineering.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 020200 THEORETICAL AND CONDENSED MATTER PHYSICS

This group covers R&D in theoretical and condensed matter physics.

This group has two classes:

- 020201 Theoretical Physics
- 020202 Condensed Matter Physics

GROUP 020300 ATOMIC, MOLECULAR, NUCLEAR, PARTICLE AND PLASMA PHYSICS

This group covers R&D in atomic, molecular, nuclear, particle and plasma physics.

This group has four classes:

- 020301 Atomic and Molecular Physics
- 020302 Fluids, Plasmas and Electrical Discharges
- 020303 Nuclear and Particle Physics
- 020399 Atomic, Molecular, etc. Physics n.e.c.

Exclusions: R&D in related chemicals is included in Group 030100 Physical Chemistry.

GROUP 020400 ACOUSTIC AND OPTICAL PHYSICS

This group covers R&D in acoustic and optical physics.

This group has four classes:

- 020401 Acoustics and Opto acoustical Physics
- 020402 Optical and Opto electrical Physics
- 020403 Quantum Optics
- 020499 Acoustic and Optical Physics n.e.c.

Exclusions: R&D in communication technologies is included in Group 050400 Communication Technologies.

GROUP 029900 OTHER PHYSICAL SCIENCES

This group covers any residual R&D in the physical sciences not elsewhere classified.

It includes R&D in biophysics (other than human biophysics), medical physics and instruments and techniques.

This group has four classes:

- 029901 Biophysics
- 029902 Medical Physics
- 029903 Instruments and Techniques
- 029999 Physical Sciences n.e.c.

Exclusions: R&D in human biophysics is included in Group 100500 Physiology.

SUBDIVISION 030000 CHEMICAL SCIENCES

This subdivision covers R&D in the chemical sciences.

It includes R&D in immunological and bioassay methods. It also includes R&D in atmospheric chemistry.

This subdivision has five groups:

- 030100 Physical Chemistry (Incl. Theoretical and Structural)
- 030200 Inorganic Chemistry
- 030300 Organic Chemistry
- 030400 Analytical Chemistry
- 039900 Other Chemical Sciences

Exclusions: R&D in (a) geochemistry is included in Group 040300 Geochemistry; (b) chemical engineering is included in Group 070200 Chemical Engineering; (c) biochemistry is included in Group 080100 Biochemistry; (d) soil chemistry is included in Group 090100 Soil and Water Sciences; and (e) medical biochemistry and clinical chemistry is included in Group 100200 Medical Biochemistry and Clinical Chemistry.

GROUP 030100 PHYSICAL CHEMISTRY (INCL. THEORETICAL AND STRUCTURAL)

This group covers R&D in physical chemistry.

This group has ten classes:

- 030101 Chemical Thermodynamics and Energetics
- 030102 Chemistry of Catalysis
- 030103 Polymer Chemistry
- 030104 Colloid and Surface Chemistry
- 030105 Chemical Spectroscopy
- 030106 Structural Chemistry
- 030107 Mechanisms of Reactions
- 030108 Theoretical Chemistry
- 030109 Electrochemistry
- 030199 Physical Chemistry n.e.c.

Exclusions: R&D in (a) material sciences is included in Group 060400 Material Sciences and Technologies; (b) mechanical and industrial engineering is included in Group 070100 Mechanical and Industrial Engineering; and (c) chemical engineering is included in Group 070200 Chemical Engineering.

GROUP 030200 INORGANIC CHEMISTRY

This group covers R&D in inorganic chemistry.

This group has five classes:

- 030201 Transition Metal Chemistry
- 030202 Main Group Chemistry
- 030203 Solid State Chemistry
- 030204 Bioinorganic Chemistry
- 030299 Inorganic Chemistry n.e.c.

Exclusions: R&D in organometallic chemistry, environmental chemistry and industrial chemistry is included in Group 039900 Other Chemical Sciences.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 030300 ORGANIC CHEMISTRY

This group covers R&D in organic chemistry.

It includes R&D in biological and medical chemistry.

This group has four classes:

- 030301 Organic Chemical Synthesis
- 030302 Biological and Medical Chemistry
- 030303 Physical Organic Chemistry
- 030399 Organic Chemistry n.e.c.

Exclusions: R&D in (a) immunological and bioassay methods is included in Group 030400 Analytical Chemistry; (b) organometallic chemistry, environmental or industrial chemistry is included in Group 039900 Other Chemical Sciences; (c) biochemistry is included in Group 080100 Biochemistry; (d) medical and clinical biochemistry is included in Group 100200 Medical Biochemistry and Clinical Chemistry; and (e) pharmacology for human use is included in Group 100400 Pharmacology.

GROUP 030400 ANALYTICAL CHEMISTRY

This group covers R&D in analytical chemistry.

This group has four classes:

- 030401 Instrumentational Methods
- 030402 Chemical and Physical Methods
- 030403 Immunological and Bioassay Methods
- 030499 Analytical Chemistry n.e.c.

GROUP 039900 OTHER CHEMICAL SCIENCES

This group covers R&D in organometallic chemistry, environmental chemistry (incl. atmospheric chemistry), industrial chemistry and any residual R&D in chemical sciences not elsewhere classified.

This group has four classes:

- 039901 Organometallic Chemistry
- 039902 Environmental Chemistry (incl. Atmospheric Chemistry)
- 039903 Industrial Chemistry
- 039999 Chemical Sciences n.e.c.

Exclusions: R&D in soil chemistry is included in Group 090100 Soil and Water Sciences.

SUBDIVISION 040000 EARTH SCIENCES

This subdivision covers R&D in the earth sciences.

This subdivision has seven groups:

- 040100 Geology
- 040200 Geophysics
- 040300 Geochemistry
- 040400 Oceanography
- 040500 Hydrology
- 040600 Atmospheric Sciences
- 049900 Other Earth Sciences

Exclusions: R&D in (a) environmental and atmospheric chemistry is included in Group 039900 Other Chemical Sciences; (b) material sciences and metallurgy is included in Group 060400 Material Sciences and Technologies; (c) mining and mineral processing is included in Group 070300 Mining and Mineral Processing; and (d) soil and water sciences (incl. applied hydrology) is included in Group 090100 Soil and Water Sciences.

GROUP 040100 GEOLOGY

This group covers R&D in geology.

It includes R&D in palaeontology (incl. palaeozoology and palaeobotany) and palynology (other than palynology associated with palaeoecological studies).

This group has fifteen classes:

- 040101 Mineralogy and Crystallography
- 040102 Igneous and Metamorphic Petrology
- 040103 Vulcanology
- 040104 Sedimentology
- 040105 Petroleum Geology
- 040106 Ore Deposit Petrology
- 040107 Structural Geology
- 040108 Geotectonics
- 040109 Geochronology
- 040110 Biostratigraphy
- 040111 Palaeontology
- 040112 Palynology
- 040113 Geomorphology
- 040114 Glaciology
- 040199 Geology n.e.c.

Exclusions: R&D in (a) the chemical aspects of crystallography and solid state chemistry is included in Group 030200 Inorganic Chemistry; (b) palaeoclimatology is included in Group 040600 Atmospheric Sciences; (c) material sciences and metallurgy is included in Group 060400 Material Sciences and Technologies; (d) mining and mineral processing is included in Group 070300 Mining and Mineral Processing; (e) palaeoecology and palynology associated with palaeoecological studies is included in Group 080600 Ecology; and (f) palynology associated with limnological studies is also included in Group 080600 Ecology, Class 080602 Limnology.

GROUP 040200 GEOPHYSICS

This group covers R&D in geophysics.

This group has eight classes:

- 040201 Gravity
- 040202 Geomagnetism
- 040203 Electromagnetism
- 040204 Petrophysics
- 040205 Explosion Seismology and Stratigraphy
- 040206 Earthquake Seismology
- 040207 Radiometrics
- 040299 Geophysics n.e.c.

GROUP 040300 GEOCHEMISTRY

This group covers R&D in geochemistry.

This group has five classes:

- 040301 Geochronology and Isotope Geochemistry
- 040302 Exploration Geochemistry
- 040303 Organic Geochemistry n.e.c.
- 040304 Inorganic Geochemistry n.e.c.
- 040399 Geochemistry n.e.c.

GROUP 040400 OCEANOGRAPHY

This group includes R&D in oceanography.

This group has four classes:

- 040401 Biological Oceanography
- 040402 Chemical Oceanography
- 040403 Physical Oceanography
- 040499 Oceanography n.e.c.

Exclusions: R&D in marine biology is included in Group 089900 Other Biological Sciences.

GROUP 040500 HYDROLOGY

This group covers R&D in hydrology, other than applied hydrology.

This group has three classes:

- 040501 Groundwater Hydrology
- 040502 Surfacewater Hydrology
- 040599 Hydrology n.e.c.

Exclusions: R&D in applied hydrology is included in Group 090100 Soil and Water Sciences.

GROUP 040600 ATMOSPHERIC SCIENCES

This group covers R&D in atmospheric sciences, other than atmospheric chemistry.

This group has four classes:

- 040601 Meteorology
- 040602 Climatology (incl. Palaeoclimatology)
- 040603 Ionospheric and Magnetospheric Physics
- 040699 Atmospheric Sciences n.e.c.

Exclusions: R&D in atmospheric chemistry is included in Group 039900 Other Chemical Sciences.

GROUP 049900 OTHER EARTH SCIENCES

This group covers R&D in earth sciences not elsewhere classified.

It includes R&D in physical geography and environmental management and rehabilitation.

This group has three classes:

- 049901 Physical Geography
- 049902 Environmental Management and Rehabilitation
- 049999 Earth Sciences n.e.c.

Exclusions: R&D concerned with the physical aspects of limnology is included in Group 080600 Ecology.

SUBDIVISION 050000 INFORMATION, COMPUTER AND COMMUNICATION
TECHNOLOGIES

This subdivision covers R&D in information, computer and communication sciences and technologies.

For the purposes of this classification, R&D in the following fields are included: mathematics associated with computer science, the application of psychology to cognitive science and the application of psychology to an understanding of computer-human interface.

This subdivision has five groups:

- 050100 Information Systems and Technologies
- 050200 Computer Hardware
- 050300 Computer Software
- 050400 Communication Technologies
- 059900 Other Information, Computer and Communication Technologies

Exclusions: R&D in (a) the application of information and computer sciences other than specifically for information, computer sciences and technologies is included in other appropriate groups, e.g. computer modelling for atmospheric research is included in Group 040600 Atmospheric Sciences; software development for forest management is included in Group 090600 Forestry Sciences; (b) robotics and mechatronics, CAD/CAM systems concerned with manufacturing and process technologies is included in Group 060200 Manufacturing and Process Technologies and Engineering; and (c) cognitive psychology (other than applied cognitive science) is included in Group 111200 Psychology.

GROUP 050100 INFORMATION SYSTEMS AND TECHNOLOGIES

This group covers R&D in information science, information systems and technologies.

It includes R&D in:

- . technologies concerned with the processing or presentation of information or data and the development of systems for performing such task;
- . sciences and technologies supporting or providing understanding about the operations of such information systems;
- . computer and information systems organisation, design and management;
- . artificial intelligence and expert systems;
- . parallel processing and architecture which for the purposes of this classification also includes neural network systems which is classified in Class 050104 Parallel Processing and Architecture;
- . technologies supplementing or supporting information systems or presentation, such as computer graphics, image processing and speech recognition; and
- . cognitive science.

This group has nine classes:

- 050101 Computer Systems Organisation
- 050102 Information Systems Management
- 050103 Artificial Intelligence and Expert Systems
- 050104 Parallel Processing and Architecture
- 050105 Computer Graphics
- 050106 Image Processing
- 050107 Speech Recognition
- 050108 Cognitive Science
- 050199 Information Systems and Technologies n.e.c.

Exclusions: R&D in the development of computer hardware is included in Group 050200 Computer Hardware. For example research directed at theoretical understanding of neural network technology is included in Class 050104 Parallel Processing and Architecture, but logic design for hardware and hardware development for parallel computing is included in Group 050200 Computer Hardware.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 050200 COMPUTER HARDWARE

This group covers R&D directed towards the development of computer hardware including the development associated with physical components for personal computer, mainframe, accessory computer equipment or other purposes.

It includes R&D in the development of integrated circuitry, circuit boards and hardware assemblies of computing devices; and also the development of modems, multiplexers, printers, scanners or any accessory related to computers.

This group has six classes:

- 050201 Arithmetic and Logic Structures
- 050202 Memory Structures
- 050203 Input, Output and Data Communications
- 050204 Logic Design
- 050205 Integrated Circuits
- 050299 Computer Hardware n.e.c.

Exclusions: R&D in hardware technologies in communication systems is included in Group 050400 Communication Technologies.

GROUP 050300 COMPUTER SOFTWARE

This group covers R&D in technologies related to computer software, software programming, computer languages and software operating systems.

This group has five classes:

- 050301 Programming Techniques
- 050302 Software Engineering
- 050303 Computer Languages
- 050304 Operating Systems
- 050399 Computer Software n.e.c.

Exclusions: R&D in the development of computer software which has application to fields other than Subdivision 050000 Information, Computer and Communication Technologies is included in other appropriate groups, e.g. software development relating to flexible manufacturing systems is included in Group 060200 Manufacturing and Process Technologies and Engineering.

GROUP 050400 COMMUNICATION TECHNOLOGIES

This group covers R&D in technologies supporting communications and communication systems.

It includes R&D in:

- . communication networks and analysis;
- . communication and broadcasting systems;
- . digital systems, optical and photonic systems or any other communication system;
- . antenna technology (incl. that used in remote sensing and satellite technology); and
- . microwave and millimetrewave technology.

This group has six classes:

- 050401 Antenna Technology
- 050402 Optical and Photonic Systems
- 050403 Digital Systems
- 050404 Radio Communications and Broadcasting n.e.c.
- 050405 Microwave and Millimetrewave Technology
- 050499 Communication Technology n.e.c.

Exclusions: R&D in remote sensing and satellite technology is included in Group 060100 Aerospace Technologies and Engineering; and (b) data transfer systems used primarily for computing purposes is included in Group 050200 Computer Hardware, Class 050203 Input, Output and Data Communications.

GROUP 059900 OTHER INFORMATION, COMPUTER AND COMMUNICATION
TECHNOLOGIES

This group covers all residual R&D in information, computer and communication technologies.

It includes R&D in:

- . mathematics of computing;
- . the understanding of computer-human interface and application of psychology to computer-human interface;
- . virtual and artificial realities and related simulation;
- . other multimedia technologies and information, computer and communication technologies not elsewhere classified.

This group has four classes:

- 059901 Mathematics of Computing
- 059902 Computer-Human Interface
- 059903 Virtual Reality and Related Simulation
- 059999 Information, Computer and Communication Technologies n.e.c.

SUBDIVISION 060000 APPLIED SCIENCES AND TECHNOLOGIES

This subdivision includes R&D in applied sciences and technologies, including aerospace technologies and engineering, manufacturing and process technologies and engineering, industrial biotechnology and food sciences, material sciences and technologies and any other applied science technologies not elsewhere classified.

This subdivision has five groups:

- 060100 Aerospace Technologies and Engineering
- 060200 Manufacturing and Process Technologies and Engineering
- 060300 Industrial Biotechnology and Food Sciences
- 060400 Material Sciences and Technologies
- 069900 Other Applied Sciences and Technologies

Exclusions: R&D in (a) information, computer and communication technologies is included in Subdivision 050000 Information, Computer and Communication Technologies; and (b) general engineering including mechanical and industrial engineering, chemical engineering, mining and mineral processing, civil engineering, electrical and electronic engineering and other general engineering is included in Subdivision 070000 General Engineering.

GROUP 060100 AEROSPACE TECHNOLOGIES AND ENGINEERING

This group covers R&D in aerospace technologies and engineering including avionics and aeronautical or astronomical engineering.

It includes R&D in remote sensing and related technologies which is included in Class 060103 Remote Sensing. All R&D directed towards satellites which are used in remote sensing is however included in Class 060104 Satellite Technology.

This group has five classes:

- 060101 Avionics
- 060102 Aeronautical Engineering
- 060103 Remote Sensing
- 060104 Satellite Technology
- 060199 Aerospace Technologies and Engineering n.e.c.

Exclusions: R&D in remote sensing and satellites with specific application to antenna technology is included in Group 050400 Communication Technologies.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 060200 MANUFACTURING AND PROCESS TECHNOLOGIES AND
ENGINEERING

This group covers R&D in manufacturing and process technologies and engineering.

It includes R&D in:

- . robots, robotic systems and mechatronics;
- . flexible manufacturing systems;
- . computer-aided design and computer-aided manufacture otherwise known as CAD/CAM;
- . control engineering;
- . welding science (incl. welding processes);
- . textile manufacturing process and technologies; and
- . membrane and separation technologies.

This group has eight classes:

- 060201 Robotics and Mechatronics
- 060202 Flexible Manufacturing Systems
- 060203 CAD/CAM Systems
- 060204 Control Engineering
- 060205 Welding Sciences
- 060206 Textile Technology
- 060207 Membrane and Separation Technologies
- 060299 Manufacturing and Process Technologies and Engineering n.e.c.

Exclusions: R&D in (a) the information systems is included in Group 050100 Information Systems and Technologies; (b) computer hardware and computer software is included in Group 050200 Computer Hardware and Group 050300 Computer Software respectively; (c) laser technology is included in Group 069900 Other Applied Sciences and Technologies, Class 069902 Laser Technology; and (c) biosensors associated with membrane or separation technologies or any other use is also included in Group 069900 Other Applied Sciences and Technologies.

GROUP 060300 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

This group covers R&D in industrial biotechnology and food sciences.

It includes R&D in:

- . fermentation, biotechnology and industrial microbiology, either for production of food or other products;
- . packaging, storage and transportation associated with industrial biotechnology and food sciences; and
- . safety and quality in respect of industrial biotechnology and food sciences (incl. food engineering and food processing).

This group has six classes:

- 060301 Fermentation, Biotechnology and Industrial Microbiology
- 060302 Packaging, Storage and Transportation
- 060303 Safety and Quality
- 060304 Food Engineering
- 060305 Food Processing
- 060399 Industrial Biotechnology and Food Sciences n.e.c.

Exclusions: R&D in the non-applied aspects of biotechnology is included in Group 080200 Genetics, Molecular Biology and Biotechnology.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 060400 MATERIAL SCIENCES AND TECHNOLOGIES

This group covers R&D in the material sciences and technologies.

It includes R&D in:

- . metallurgical sciences which cover extractive metallurgy (incl. pyrometallurgy, hydrometallurgy and other extractive metallurgy n.e.c.) and physical metallurgy;
- . ceramics science and ceramics engineering;
- . applied science and technology contributing to polymers and textile compounds;
- . other material sciences and technologies concerned with composite materials, alloy materials, optical materials and biomaterials (incl. biomedical engineering directly applicable to the development of biomaterials); and
- . material sciences and technologies concerned with superconducting materials and superconductivity which is included in Class 060411 Superconducting Materials.

This group has twelve classes:

- 060401 Pyrometallurgy
- 060402 Hydrometallurgy
- 060403 Extractive Metallurgy n.e.c.
- 060404 Physical Metallurgy
- 060405 Ceramics
- 060406 Polymer and Textile Compounds
- 060407 Composite Materials
- 060408 Alloy Materials
- 060409 Optical Materials
- 060410 Biomaterials
- 060411 Superconducting Materials
- 060499 Material Sciences and Technologies n.e.c.

Exclusions: R&D in (a) polymer chemistry without specific application is included in Group 030100 Physical Chemistry (Incl. Theoretical and Structural); and (b) building materials is included in Group 069900 Other Applied Sciences and Technologies.

GROUP 069900 OTHER APPLIED SCIENCES AND TECHNOLOGIES

This group covers R&D in other applied sciences and technologies not classified within Subdivision 060000 Applied Science and Technologies.

It includes R&D in building science and building materials and also laser and biosensor technologies.

This group has four classes:

- 069901 Building Science
- 069902 Laser Technology
- 069903 Biosensor Technologies
- 069999 Applied Sciences and Technologies n.e.c.

SUBDIVISION 070000 GENERAL ENGINEERING

This subdivision covers R&D in general engineering, including mechanical and industrial engineering, chemical engineering, mining and mineral processing, civil engineering, electrical and electronic engineering and other engineering not elsewhere classified.

This subdivision has six groups:

- 070100 Mechanical and Industrial Engineering
- 070200 Chemical Engineering
- 070300 Mining and Mineral Processing
- 070400 Civil Engineering
- 070500 Electrical and Electronic Engineering
- 079900 Other General Engineering

Exclusions: R&D in (a) information, computer and communication technologies is included in Subdivision 050000 Information, Computer and Communication Technologies; (b) avionics and aeronautical engineering is included in Group 060100 Aerospace Technologies and Engineering, Subdivision 060000 Applied Sciences and Technologies; (c) control engineering is included in Group 060200 Manufacturing and Process Technologies and Engineering; (d) food engineering is included in Group 060300 Industrial Biotechnology and Food Sciences; and (e) material sciences and technologies (incl. ceramic engineering) is included in Group 060400 Material Sciences and Technologies.

GROUP 070100 MECHANICAL AND INDUSTRIAL ENGINEERING

This group covers R&D in mechanical and industrial engineering.

This group has two classes:

- 070101 Mechanical Engineering
- 070102 Industrial Engineering

Exclusions: R&D in manufacturing and process technologies is included in Group 060200 Manufacturing and Process Technologies and Engineering.

GROUP 070200 CHEMICAL ENGINEERING

This group covers R&D in chemical engineering and includes R&D in design, fluidization and fluid mechanics, heat and mass transfer operation, process control and simulation other than those associated with control engineering.

This group has five classes:

- 070201 Chemical Engineering Design
- 070202 Process Control and Simulation
- 070203 Fluidization and Fluid Mechanics
- 070204 Heat and Mass Transfer Operations
- 070299 Chemical Engineering n.e.c.

Exclusions: R&D in manufacturing and process technologies (incl. process control associated with control engineering) is included in Group 060200 Manufacturing and Process Technologies and Engineering.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 070300 MINING AND MINERAL PROCESSING

This group covers R&D in mining engineering and mineral processing and includes petroleum and reservoir engineering and geomechanics.

This group has five classes:

- 070301 Mining Engineering
- 070302 Mineral Processing
- 070303 Petroleum and Reservoir Engineering
- 070304 Geomechanics
- 070399 Mining and Mineral Processing n.e.c.

Exclusions: R&D in geology, geophysics, geochemistry, hydrology and any other earth science is included in the appropriate groups in Subdivision 040000 Earth Sciences.

GROUP 070400 CIVIL ENGINEERING

This group includes R&D in civil engineering (incl. structural engineering and surveying).

It includes R&D in:

- . transport engineering (other than avionics and aeronautical engineering);
- . naval engineering which is included in Class 070404 Transport Engineering;
- . water and sanitary engineering; and
- . agricultural engineering.

This group has six classes:

- 070401 Structural Engineering
- 070402 Surveying
- 070403 Water and Sanitary Engineering
- 070404 Transport Engineering
- 070405 Agricultural Engineering
- 070499 Civil Engineering n.e.c.

Exclusions: R&D in (a) avionics and aeronautical engineering is included in Group 060100 Aerospace Technologies and Engineering; and (b) applied hydrology is included in Group 090100 Soil and Water Sciences.

GROUP 070500 ELECTRICAL AND ELECTRONIC ENGINEERING

This group covers R&D in general electrical engineering not elsewhere classified and electronic engineering.

This group has two classes:

- 070501 Electrical Engineering (General)
- 070502 Electronic Engineering

Exclusions: R&D in electrical or electronic engineering associated with information, computer and communication technologies is included in the appropriate groups in Subdivision 050000 Information, Computer and Communication Technologies.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 079900 OTHER GENERAL ENGINEERING

This group covers all residual R&D concerned with general engineering which are not classified in the following subdivisions, Subdivision 050000 Information, Computer and Communication Technologies, Subdivision 060000 Applied Sciences and Technologies and Subdivision 070000 General Engineering. It includes R&D in biomedical engineering, power engineering and combustion and fuel engineering.

This group has four classes:

- 079901 Biomedical Engineering
- 079902 Power Engineering
- 079903 Combustion and Fuel Engineering
- 079999 General Engineering n.e.c.

Exclusions: R&D in biomedical engineering associated with the development of biomaterials is included in Group 060400 Material Sciences and Technologies.

SUBDIVISION 080000 BIOLOGICAL SCIENCES

This subdivision covers R&D in the biological or life sciences, other than agricultural sciences or medical and health sciences.

This subdivision has seven groups:

- 080100 Biochemistry
- 080200 Genetics, Molecular Biology and Biotechnology
- 080300 Microbiology
- 080400 Botany
- 080500 Zoology
- 080600 Ecology
- 089900 Other Biological Sciences

Exclusions: R&D in (a) biological or life sciences associated with agricultural and veterinary sciences, forestry, commercial fishing or other aspects of primary production is included in Subdivision 090000 Agricultural Sciences; and (b) biological or life sciences associated with human health and medicine is included in Subdivision 100000 Medical and Health Sciences.

GROUP 080100 BIOCHEMISTRY

This group covers R&D in biochemistry or the chemistry of living organisms.

This group has six classes:

- 080101 Biochemistry of Nucleic Acids
- 080102 Biochemistry of Proteins and Peptides
- 080103 Biochemistry of Carbohydrates
- 080104 Biochemistry of Lipids
- 080105 Biosynthetic Pathways
- 080199 Biochemistry n.e.c.

Exclusions: R&D in biochemistry associated with medical science is included in Group 100200 Medical Biochemistry and Clinical Chemistry.

GROUP 080200 GENETICS, MOLECULAR BIOLOGY AND BIOTECHNOLOGY

This group covers R&D in genetics and heredity, molecular biology, cell biology and biotechnology (incl. genetic engineering).

This group has eight classes:

- 080201 Molecular Genetics
- 080202 Cytogenetics
- 080203 Population Genetics
- 080204 Genetic Engineering: Gene Probes
- 080205 Genetic Engineering: Recombinant DNA Techniques
- 080206 Genetic Engineering n.e.c.
- 080207 Molecular Cell Biology
- 080299 Genetics, Molecular Biology and Biotechnology n.e.c.

Exclusions: R&D in (a) cell biology concerned with cell structure or membrane is included in Group 089900 Other Biological Sciences; (b) plant genetics is included in Group 090200 Crop and Pasture Production; (c) tissue culture primarily for propagation or production of horticultural crops is included in Group 090300 Horticulture; (d) animal genetics associated with animal breeding is included in 090400 Animal Production; and (e) genetics associated with medical science is included in Group 100700 Clinical Sciences.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 080300 MICROBIOLOGY

This group covers R&D in microbiology or the study of microscopic organisms including bacteriology, parasitology and virology.

This group has four classes:

- 080301 Bacteriology
- 080302 Parasitology
- 080303 Virology
- 080399 Microbiology n.e.c.

Exclusions: R&D in (a) veterinary microbiology is included in Group 090500 Veterinary Sciences; and (b) medical microbiology is included in Group 100300 Medical Microbiology.

GROUP 080400 BOTANY

This group covers R&D in botany and related plant sciences.

It includes R&D in:

- . mycology which for the purpose of this classification includes the study of lichen and is classified in Class 080403 Mycology;
- . in plant pathology other than associated with plant protection procedures in the field; and
- . phycology (incl. algae and marine grasses).

This group has six classes:

- 080401 Plant Taxonomy
- 080402 Plant Physiology
- 080403 Mycology
- 080404 Plant Pathology
- 080405 Phycology
- 080499 Botany n.e.c.

Exclusions: R&D in (a) palaeobotany and palynology (other than palynology associated with ecological studies) is included in Group 040100 Geology; (b) plant ecology and palynology associated with ecological studies is included in Group 080600 Ecology; and (c) plant science or plant pathology associated with agriculture, forestry or primary production is included in the appropriate groups in Subdivision 090000 Agricultural Sciences.

GROUP 080500 ZOOLOGY

This group covers R&D in zoology.

It includes R&D in:

- . the study of terrestrial vertebrates (other than human), non-insect terrestrial invertebrates, ornithology, herpetology and freshwater ichthyology;
- . ethology.
- . entomology which is classified in Class 080507 Entomology.

This group has eight classes:

080501 Animal Taxonomy
080502 Neurobiology
080503 Physiology
080504 Immunology
080505 Anatomy and Histology
080506 Ethology
080507 Entomology
080599 Zoology n.e.c.

Exclusions: R&D in (a) palaeontology is included in Group 040100 Geology; (b) the use of live animals for purposes of primary production is included Group 090400 Animal Production; (c) fisheries and aquaculture for primary production is included in Group 090700 Fisheries Sciences; (d) the human immune system is included in Group 100100 Immunology; (e) human physiology is included in Group 100500 Physiology; (f) the human nervous system is included in 100600 Neurosciences; and (g) the use of live animals or material from live animals for medical research is included in Group 109900 Other Medical and Health Sciences.

GROUP 080600 ECOLOGY

This group covers R&D in ecology or ecological systems, whether freshwater, marine or terrestrial.

It includes R&D in:

- . plant or animal ecology;
- . limnology and in ecological studies (incl. palynology) of freshwater bodies such as lakes and ponds.
This is included in Class 080602 Limnology; and
- . palaeoecology (incl. palynology associated with palaeoecological studies).

This group has six classes:

080601 Freshwater Ecology (excl. Limnology)
080602 Limnology
080603 Marine Ecology
080604 Terrestrial Ecology
080605 Palaeoecology
080699 Ecology n.e.c.

Exclusions: R&D in (a) palaeontology is included in Group 040100 Geology; and (b) palynology in association with geological studies is also included in Group 040100 Geology.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 089900 OTHER BIOLOGICAL SCIENCES

This group covers R&D in biological sciences not elsewhere classified.

It includes R&D in evolutionary biology (other than that concerned with the earth sciences); cell structure and membrane biology. It also includes all marine biology (incl. marine ichthyology). For the purposes of this classification, marine biology also includes estuarine biology.

This group has four classes:

- 089901 Evolutionary Biology
- 089902 Cell Structure and Membrane Biology
- 089903 Marine Biology (incl. Marine Ichthyology)
- 089999 Biological Sciences n.e.c.

Exclusions: R&D in (a) phycology (incl. marine grasses) is included in Group 080400 Botany; and (b) freshwater ichthyology is included in Group 080500 Zoology.

SUBDIVISION 090000 AGRICULTURAL SCIENCES

This subdivision covers R&D in sciences and technologies supporting agriculture.

It includes R&D in soil and water science, crop and pasture production, agronomy, horticulture, animal production, forestry sciences and other agricultural sciences. It also includes R&D in the veterinary sciences.

This subdivision has eight groups:

- 090100 Soil and Water Sciences
- 090200 Crop and Pasture Production
- 090300 Horticulture
- 090400 Animal Production
- 090500 Veterinary Sciences
- 090600 Forestry Sciences
- 090700 Fisheries Sciences
- 099900 Other Agricultural Sciences

Exclusions: R&D in (a) agricultural engineering is included in Group 070400 Civil Engineering; and (b) agricultural economics is included in Group 110200 Economics.

GROUP 090100 SOIL AND WATER SCIENCES

This group covers R&D in soil science and the applied aspects of water science (i.e. applied hydrology) for the purposes of primary production.

This group has six classes:

- 090101 Soil Physics
- 090102 Soil Biology
- 090103 Soil Chemistry
- 090104 Soil and Land Degradation
- 090105 Applied Hydrology (Drainage, Flooding, Irrigation, Quality, etc.)
- 090199 Soil and Water Sciences n.e.c.

Exclusions: R&D in basic water science or hydrology is included in Group 040500 Hydrology.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 090200 CROP AND PASTURE PRODUCTION

This group covers R&D in the sciences and technologies directed towards the production of crops, pastures and grains.

It includes R&D in agronomy; plant genetics and plant protection procedures in the field; the post harvest treatment, transportation and storage of crops and grains; and weed science.

This group has nine classes:

- 090201 Crop and Pasture Physiology
- 090202 Crop and Pasture Nutrition
- 090203 Crop and Pasture Pathology
- 090204 Plant Breeding
- 090205 Plant Protection (Pests and Pathogens)
- 090206 Agronomy
- 090207 Post Harvest Technologies (Transportation and Storage)
- 090208 Weed Sciences
- 090299 Crop and Pasture Production n.e.c.

Exclusions: R&D in (a) plant pathology associated with basic botanical studies is included in Group 080400 Botany; and (b) post harvest treatment of horticultural crops and produce is included in Group 090300 Horticulture.

GROUP 090300 HORTICULTURE

This group covers R&D in horticulture and horticultural science.

It includes R&D in:

- . the propagation and culture of garden or horticultural crops (incl. production methods such as tissue culture, glasshouse techniques, hydroponics);
- . fruit crops (other than table grapes) which is included in Class 090301 Fruit Crops;
- . viticulture (incl. growing table and wine grapes) and wine technologies which is included in Class 090303 Oenology and Viticulture;
- . flower production, ornamental crops and nursery stock;
- . propagating and growing vegetable crops (incl. mushrooms and fungi consumed as food) which is included in Class 090304 Vegetable Culture;
- . post-harvest treatment of horticultural crops; and
- . lawns for aesthetic or sporting purposes which is included in Class 090399 Horticulture n.e.c.

This group has five classes:

- 090301 Fruit Crops
- 090302 Floriculture and Ornamental Horticulture
- 090303 Oenology and Viticulture
- 090304 Vegetable Culture
- 090399 Horticulture n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 090400 ANIMAL PRODUCTION

This group covers R&D in the sciences and technologies supporting the primary production of livestock and the primary production of birds and poultry (incl. egg production). It includes R&D in bees and apiary culture.

This group has seven classes:

- 090401 Animal Breeding
- 090402 Animal Reproduction
- 090403 Animal Nutrition
- 090404 Animal Husbandry
- 090405 Animal Protection (Pests and Pathogens)
- 090406 Animal Growth and Development
- 090499 Animal Production n.e.c.

Exclusions: R&D in (a) veterinary science is included in Group 090500 Veterinary Sciences; and (b) the culture and production of marine and freshwater animals (incl. fish, crustaceans and shellfish) is included in Group 090700 Fisheries Sciences.

GROUP 090500 VETERINARY SCIENCES

This group covers R&D in veterinary science practised on livestock for primary production, domestic or other uses (e.g. sport).

This group has nine classes:

- 090501 Epidemiology
- 090502 Physiology
- 090503 Pathology
- 090504 Bacteriology
- 090505 Parasitology
- 090506 Virology
- 090507 Surgery
- 090508 Pharmacology
- 090599 Veterinary Sciences n.e.c.

Exclusions: R&D in field procedures to protect animals against pest and pathogens is included in Group 090400 Animal Production.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 090600 FORESTRY SCIENCES

This group covers R&D in forestry sciences and silviculture. It includes R&D in forest fire prevention and control.

This group has seven classes:

- 090601 Breeding
- 090602 Pests, Health and Diseases
- 090603 Management and Environment
- 090604 Fire Management
- 090605 Wildlife and Habitat Management
- 090606 Agroforestry
- 090699 Forestry Sciences n.e.c.

GROUP 090700 FISHERIES SCIENCES

This group covers R&D in the sciences and technologies supporting fishing or production of freshwater or marine fisheries (incl. shellfish and crustaceans).

This group has four classes:

- 090701 Marine Fisheries
- 090702 Marine Aquaculture
- 090703 Inland Water Fisheries and Aquaculture
- 090799 Fisheries Sciences n.e.c.

GROUP 099900 OTHER AGRICULTURAL SCIENCES

This group covers R&D in the agricultural sciences not elsewhere classified.

It includes R&D in fertilisers and agrochemicals (incl. their application), agricultural systems and farm management (incl. extension services).

This group has three classes:

- 099901 Fertilisers and Agrochemicals (Application etc.)
- 099902 Agricultural Systems and Farm Management
- 099999 Agricultural Sciences n.e.c.

SUBDIVISION 100000 MEDICAL AND HEALTH SCIENCES

Note: Only R&D which is directly relevant to health and medicine is to be classified in Subdivision 100000 Medical and Health Sciences. See also Subdivision 080000 Biological Sciences.

This subdivision covers R&D in the medical and health sciences.

This subdivision has ten groups:

- 100100 Immunology
- 100200 Medical Biochemistry and Clinical Chemistry
- 100300 Medical Microbiology
- 100400 Pharmacology
- 100500 Physiology
- 100600 Neurosciences
- 100700 Clinical Sciences
- 100800 Public Health Research
- 100900 Health Services Research
- 109900 Other Medical and Health Sciences

Exclusions: R&D in (a) biological sciences without application to human health and disease is included in the appropriate group in Subdivision 080000 Biological Sciences; (b) biological and life sciences associated with agricultural and veterinary studies is included in the appropriate group in Subdivision 090000 Agricultural Sciences; and (c) ergonomics is included in Group 120500 Design Studies.

GROUP 100100 IMMUNOLOGY

This group covers R&D in the processes and reactions of the human immune system.

This group has seven classes:

- 100101 Allergy
- 100102 Cellular Immunology
- 100103 Humoral Immunology and Immunochemistry
- 100104 Immunogenetics
- 100105 Transplantation Immunology
- 100106 Tumor Immunology
- 100199 Immunology n.e.c.

Exclusions: R&D into specific human disorders or diseases is included in Group 100700 Clinical Sciences.

GROUP 100200 MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY

This group covers R&D in human biochemistry or the chemistry of human living organisms and the human life process.

This group has six classes:

- 100201 Clinical Chemistry
- 100202 Medical Biochemistry: Carbohydrates
- 100203 Medical Biochemistry: Lipids
- 100204 Medical Biochemistry: Nucleic Acids
- 100205 Medical Biochemistry: Proteins and Peptides
- 100299 Medical Biochemistry and Clinical Chemistry n.e.c.

Exclusions: R&D in biochemistry of species other than human and biochemistry not related to medicine or health is included in Group 080100 Biochemistry.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 100300 MEDICAL MICROBIOLOGY

This group covers R&D in microbiology associated with human health and disease.

This group has four classes:

- 100301 Bacteriology
- 100302 Parasitology
- 100303 Virology
- 100399 Medical Microbiology n.e.c.

Exclusions: R&D in microbiology (a) for reason not related to medicine is included in Group 080300 Microbiology; and (b) in association with veterinary practice is included in Group 090500 Veterinary Sciences.

GROUP 100400 PHARMACOLOGY

This group covers R&D in the preparation, properties, uses and actions of drugs for medical use.

This group has four classes:

- 100401 Basic Pharmacology
- 100402 Clinical Pharmacology and Therapeutics
- 100403 Toxicology
- 100499 Pharmacology n.e.c.

Exclusions: R&D in pharmacology for veterinary use is included in Group 090500 Veterinary Sciences.

GROUP 100500 PHYSIOLOGY

This group covers R&D in the processes and function of the human body or the physical and chemical processes involved in the functioning of the human body and its component parts.

This group has five classes:

- 100501 Human Biophysics
- 100502 Cell Physiology
- 100503 Systems Physiology
- 100504 Comparative Physiology
- 100599 Physiology n.e.c.

Exclusions: R&D in (a) medical physics is included in Group 029900 Other Physical Sciences; (b) basic animal physiology is included in Group 080500 Zoology; and (c) physiology related to specific aspects of animal production or veterinary practice is included in the appropriate groups in Subdivision 090000 Agricultural Sciences.

GROUP 100600 NEUROSCIENCES

This group covers R&D in the processes and reactions of the human nervous system.

This group has six classes:

- 100601 Autonomic Nervous System
- 100602 Central Nervous System
- 100603 Peripheral Nervous System
- 100604 Cellular Nervous System
- 100605 Sensory Systems
- 100699 Neurosciences n.e.c.

Exclusions: R&D in neurology and neuromuscular disease, psychiatry (incl. psychotherapy) and other specific neurological disorders is included in the appropriate classes in Group 100700 Clinical Sciences.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 100700 CLINICAL SCIENCES

This group covers R&D into specific clinical aspects of medicine, including causes, diagnosis and treatment of specific diseases and conditions.

It includes R&D in clinical psychology.

This group has thirty three classes:

- 100701 Anaesthesia
- 100702 Dermatology
- 100703 Cardiology
- 100704 Dentistry and Oral Surgery
- 100705 Endocrinology
- 100706 Foetal Development and Medicine
- 100707 Gastroenterology and Hepatology
- 100708 Geriatrics
- 100709 Haematology
- 100710 Intensive Care
- 100711 Infectious Diseases
- 100712 Medical Genetics
- 100713 Nephrology and Urology
- 100714 Neurology and Neuromuscular Diseases
- 100715 Obstetrics and Gynaecology
- 100716 Oncology and Carcinogenesis
- 100717 Ophthalmology and Optometry
- 100718 Orthopaedics
- 100719 Otolaryngology
- 100720 Paediatrics and Child Health
- 100721 Pathology
- 100722 Psychiatry
- 100723 Psychology - Clinical
- 100724 Radiology and Organ Imaging
- 100725 Radiotherapy and Nuclear Medicine
- 100726 Rehabilitation and Therapy: Occupational and Physical
- 100727 Rehabilitation and Therapy: Hearing and Speech
- 100728 Reproduction
- 100729 Respiratory Diseases
- 100730 Rheumatology and Arthritis
- 100731 Surgery
- 100732 Venereology
- 100799 Clinical Sciences n.e.c.

Exclusions: R&D in (a) immunology, medical biochemistry, medical microbiology, pharmacology, physiology and neurosciences is included in the appropriate groups in Subdivision 100000 Medical and Health Sciences; and (b) psychology (other than clinical) is included in Group 111200 Psychology.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 100800 PUBLIC HEALTH RESEARCH

This group covers R&D in the non-clinical aspects (e.g. statistical, administration, programme evaluation, impact of life style) of health and health care.

This group has seven classes:

- 100801 Environmental and Occupational Health and Safety
- 100802 Epidemiology and Health Information Systems
- 100803 Mental Health
- 100804 Nutrition
- 100805 Preventive Medicine
- 100806 Primary Health Care
- 100899 Public Health Research n.e.c.

Exclusions: R&D in health economics is included in Group 110300 Business Studies.

GROUP 100900 HEALTH SERVICES RESEARCH

This group covers R&D concerned with the provision, administration and evaluation of health care services.

This group has six classes:

- 100901 Human Bioethics
- 100902 Health and Community Services Research and Evaluation
- 100903 Health Care Administration
- 100904 Health Education and Promotion
- 100905 Nursing
- 100999 Health Services Research n.e.c.

Exclusions: R&D in (a) specific medical disorders, afflictions or diseases and their treatment is included in Group 100700 Clinical Sciences; and (b) technical infrastructure supporting health and medicine is included in Group 109900 Other Medical and Health Sciences.

GROUP 109900 OTHER MEDICAL AND HEALTH SCIENCES

This group covers R&D in other medical and health research not elsewhere classified.

This group has three classes:

- 109901 Biomechanics
- 109902 Medical Biotechnology
- 109999 Medical and Health Sciences n.e.c.

DIVISION 2 SOCIAL SCIENCES AND HUMANITIES

This division covers R&D in the social sciences and humanities.

R&D in the social sciences includes accounting and finance, economics, business studies, political sciences and public policy, architecture and urban environment, sociology, anthropology, social studies, human geography, population studies, law, psychology, education, media and communication studies and other social sciences not elsewhere classified.

R&D in the humanities includes language and literature, historical studies, archeology and classical studies, arts, design studies, philosophy, religious studies, history and philosophy of science and medicine and other humanities

The two subdivisions are:

- 110000 Social Sciences
- 120000 Humanities

SUBDIVISION 110000 SOCIAL SCIENCES

This subdivision covers R&D in the social sciences. It includes R&D in architecture and urban environment, law and education.

This subdivision has fifteen groups:

- 110100 Accounting and Finance
- 110200 Economics
- 110300 Business Studies
- 110400 Political Sciences and Public Policy
- 110500 Architecture and Urban Environment
- 110600 Sociology
- 110700 Anthropology
- 110800 Social Studies
- 110900 Human Geography
- 111000 Population Studies
- 111100 Law
- 111200 Psychology
- 111300 Education
- 111400 Media and Communication Studies
- 119900 Other Social Sciences

GROUP 110100 ACCOUNTING AND FINANCE

This group covers R&D in accounting and finance.

This group has four classes:

- 110101 Financial and Management Accounting
- 110102 Auditing and Accountability
- 110103 Finance
- 110199 Accounting and Finance n.e.c.

Exclusions: R&D in business management is included in Group 110300 Business Studies.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 110200 ECONOMICS

This group covers R&D in economics.

This group has thirteen classes:

- 110201 Economic Theory
- 110202 Economic History and Political Economy
- 110203 International Economics
- 110204 Monetary and Fiscal Theory
- 110205 Welfare Economics
- 110206 Health Economics
- 110207 Labour Economics
- 110208 Industry and Resource Economics
- 110209 Agricultural Economics
- 110210 Econometrics
- 110211 Economic Models and Forecasting
- 110212 Environment Economics
- 110299 Economics n.e.c.

GROUP 110300 BUSINESS STUDIES

This group covers R&D in business management, industrial relations and marketing.

This group has four classes:

- 110301 Business Management
- 110302 Industrial Relations
- 110303 Marketing
- 110399 Business Studies n.e.c.

Exclusions: R&D in finance and accounting is included in Group 110100 Accounting and Finance.

GROUP 110400 POLITICAL SCIENCES AND PUBLIC POLICY

This group covers R&D in political science, public policy and administration, international relations and in science and technology policy.

This group has five classes:

- 110401 Political Science
- 110402 Public Policy and Administration
- 110403 International Relations
- 110404 Science and Technology Policy
- 110499 Political Sciences and Public Policy n.e.c.

Exclusions: R&D in (a) administration and evaluation of health care and community services is included in Group 100800 Public Health Research; and (b) the history and philosophy of science and medicine is included in Group 120800 History and Philosophy of Science and Medicine.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 110500 ARCHITECTURE AND URBAN ENVIRONMENT

This group covers R&D in architecture and urban environment.

This group has four classes:

- 110501 Architecture
- 110502 Urban Planning
- 110503 Heritage and Conservation
- 110599 Architecture and Urban Environment n.e.c.

GROUP 110600 SOCIOLOGY

This group covers R&D in sociology. It includes R&D in social theory and policy, race and ethnic relations and criminology.

This group has four classes:

- 110601 Social Theory and Policy
- 110602 Race and Ethnic Relations
- 110603 Criminology
- 110699 Sociology n.e.c.

Exclusions: R&D in sociology of education is included in Group 111300 Education.

GROUP 110700 ANTHROPOLOGY

This group covers R&D in anthropology.

This group has three classes:

- 110701 Prehistory and Physical Anthropology
- 110702 Aboriginal Anthropology
- 110799 Anthropology n.e.c.

GROUP 110800 SOCIAL STUDIES

This group covers R&D in social studies.

It includes R&D directed towards women's studies, urban and regional studies, social work and administration and other social studies not elsewhere classified.

This group has four classes:

- 110801 Women's Studies
- 110802 Urban and Regional Studies
- 110803 Social Work and Administration
- 110899 Social Studies n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 110900 HUMAN GEOGRAPHY

This group covers R&D in human geography.

This group has four classes:

- 110901 Economic Geography
- 110902 Social and Cultural Geography
- 110903 Recreation and Leisure Studies
- 110999 Human Geography n.e.c.

Exclusions: R&D in (a) physical geography is included in Group 049900 Other Earth Sciences; and (b) demography is included in Group 111000 Population Studies.

GROUP 111000 POPULATION STUDIES

This group covers R&D in population and demographic studies.

This group has three classes:

- 111001 Population Trends and Policies (incl. Fertility and Mortality)
- 111002 Migration
- 111099 Population Studies n.e.c.

GROUP 111100 LAW

This group covers R&D in law.

This group has seven classes:

- 111101 Constitutional and Administrative Law
- 111102 Jurisprudence and Legal History
- 111103 Family Law
- 111104 Commercial and Contracts Law
- 111105 International Law
- 111106 Criminal Law
- 111199 Law n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 111200 PSYCHOLOGY

This group covers R&D in psychology other than clinical psychology.

This group has eight classes:

- 111201 Cognition, Motivation and Performance
- 111202 Learning, Memory and Perception
- 111203 Biological Psychology, Neuropsychology and Psychopharmacology
- 111204 Personality, Abilities and Assessment
- 111205 Social and Organisational Psychology
- 111206 Developmental Psychology and Ageing
- 111207 Quantitative Psychology and Methodology
- 111299 Psychology n.e.c.

Exclusions: R&D in (a) the application of psychology to cognitive science or to an understanding of computer-human interface is included in Group 059900 Other Information, Computer and Communication Technologies; (b) neuroscience is included in Group 100600 Neurosciences; (c) clinical psychology is included in Group 100700 Clinical Sciences; (d) mental health is included in Group 100800 Public Health Research; (e) criminology is included in Group 110600 Sociology; and (e) educational psychology is included in Group 111300 Education.

GROUP 111300 EDUCATION

This group covers R&D in education.

This group has seven classes:

- 111301 Educational Psychology and Curriculum Development
- 111302 History and Philosophy of Education
- 111303 Sociology of Education
- 111304 Post Secondary Education
- 111305 Teacher Education
- 111306 Educational Administration and Theory
- 111399 Education n.e.c.

GROUP 111400 MEDIA AND COMMUNICATION STUDIES

This group covers R&D in media and communication studies, journalism, librarianship and information studies.

This group has four classes:

- 111401 Media Studies
- 111402 Journalism
- 111403 Librarianship and Information Studies
- 111499 Media and Communication Studies n.e.c.

Exclusions: R&D in information, computer and communication technologies is included in the appropriate groups in Subdivision 050000 Information, Computer and Communication Technologies.

GROUP 119900 OTHER SOCIAL SCIENCES

This group covers R&D in the social sciences not elsewhere classified.

It has the one Class 119999 Other Social Sciences.

SUBDIVISION 120000 HUMANITIES

This subdivision covers R&D in the humanities.

This subdivision has nine groups:

- 120100 Language and Literature
- 120200 Historical Studies
- 120300 Archeology and Classical Studies
- 120400 Arts
- 120500 Design Studies
- 120600 Philosophy
- 120700 Religious Studies
- 120800 History and Philosophy of Science and Medicine
- 129900 Other Humanities

Exclusions: R&D in the (a) social sciences (e.g. economics, architecture and urban environment) is included in the appropriate groups in Subdivision 110000 Social Sciences; and (b) history and philosophy of education is included in Group 111300 Education.

GROUP 120100 LANGUAGE AND LITERATURE

This group covers R&D in language, linguistics, literature and literary studies.

This group has fourteen classes:

- 120101 Literary Studies: Australian
- 120102 Literary Studies: Asian and Pacific
- 120103 Literary Studies: British
- 120104 Literary Studies: European
- 120105 Literary Studies: North American
- 120106 Literary Theory and Genre Studies
- 120107 Literary Studies n.e.c.
- 120108 Lexicography
- 120109 Applied Linguistics
- 120110 Semantics
- 120111 Linguistics: Studies of Australian Aboriginal Languages
- 120112 Linguistics: Other Australian Studies
- 120113 Linguistics n.e.c.
- 120199 Language and Literature n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 120200 HISTORICAL STUDIES

This group covers R&D in the study of history and biography.

This group has nine classes:

- 120201 History: Australian
- 120202 History: Asian and the Pacific
- 120203 History: American
- 120204 History: British
- 120205 History: European
- 120206 History: Middle Eastern
- 120207 History: Other
- 120208 Biography
- 120299 Historical Studies n.e.c.

Exclusions: R&D in (a) the history of education is included in Group 111300 Education; (b) archaeology and classical studies is included in Group 120300 Archaeology and Classical Studies; and (c) the history of science and medicine is included in Group 120800 History and Philosophy of Science and Medicine.

GROUP 120300 ARCHAEOLOGY AND CLASSICAL STUDIES

This group covers R&D in archaeology and classical studies.

This group has four classes:

- 120301 Archaeology
- 120302 Egyptology
- 120303 Greek and Roman Classical Studies
- 120399 Classical Studies n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 120400 ARTS

This group covers R&D in the study of the arts, including music, fine arts and drama.

This group has four classes:

- 120401 Music
- 120402 Fine Arts
- 120403 Drama
- 120499 Arts n.e.c.

GROUP 120500 DESIGN STUDIES

This group covers R&D in design studies, including related fields such as industrial arts and design and ergonomics.

This group has five classes:

- 120501 Design History and Conservation
- 120502 Design Theory
- 120503 Design Innovation
- 120504 Design Management and Practice
- 120599 Design Studies n.e.c.

Exclusions: R&D in (a) architecture is included in Group 110500 Architecture and Urban Environment; and (b) fine arts is included in Group 120400 Arts.

GROUP 120600 PHILOSOPHY

This group covers research in philosophy.

Research in aesthetics is included in Class 120699 Philosophy n.e.c.

This group has five classes:

- 120601 Logic
- 120602 Metaphysics
- 120603 Ethics
- 120604 Social and Applied Philosophy
- 120699 Philosophy n.e.c.

Exclusions: Research in (a) mathematical logic is included in Group 010100 Pure Mathematics; (b) human bioethics is included in Group 100900 Health Services Research; (c) the philosophy of religion is included in Group 120700 Religious Studies; and (d) the philosophy of science and medicine is included in Group 120800 History and Philosophy of Science and Medicine.

GROUP 120700 RELIGIOUS STUDIES

This group covers research in the study of religion. It includes research in theology, comparative religion and the philosophy of religion.

It has the one Class 120701 Religious Studies.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
FIELD OF RESEARCH

GROUP 120800 HISTORY AND PHILOSOPHY OF SCIENCE AND MEDICINE

This group covers research in the history and philosophy of science and medicine.

This group has two classes:

- 120801 History and Philosophy of Science
- 120802 History and Philosophy of Medicine

Exclusions: R&D in (a) human bioethics is included in Group 100900 Health Services Research; and (b) science and technology policy is included in Group 110400 Political Sciences and Public Policy.

GROUP 129900 OTHER HUMANITIES

This group covers R&D in other humanities not elsewhere classified.

It has the one Class 129999 Other Humanities.

CHAPTER 4: SOCIO-ECONOMIC OBJECTIVE CLASSIFICATION (SEO)

Nature and purpose of the SEO Classification

1. The SEO Classification allows R&D data to be classified according to the researcher's perceived purpose. The purpose categories take account of processes, products, health, education and other social and environmental aspects of particular interest.
2. A purpose classification such as the SEO provides a set of categories which collectively exhaust all the objectives of research. In this respect, the scope of the SEO is more extensive than a classification of economic activities such as the ANZSIC because not all R&D has an economic motive or connotation.

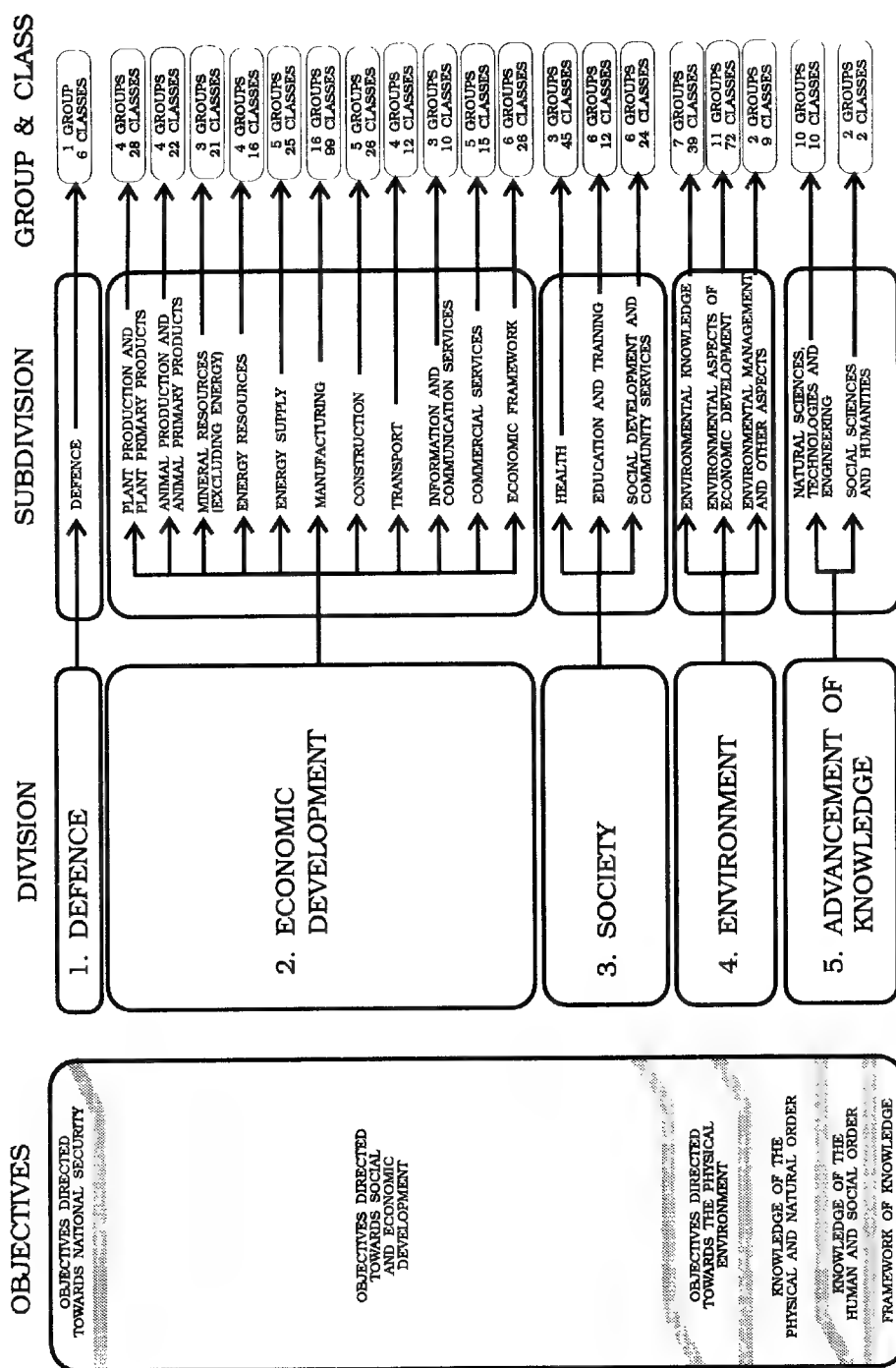
Structure of the SEO Classification

3. This classification has five divisions, namely Divisions 1 - Defence, 2 - Economic Development, 3 - Society, 4 - Environment and 5 - Advancement of Knowledge
4. The SEO Classification is illustrated in Diagram 3 on page 60. It is arranged in a hierarchical structure. It has 20 subdivisions, 107 groups and 519 classes.
5. The twenty subdivisions are:

010000	Defence
020000	Plant Production and Plant Primary Products
030000	Animal Production and Animal Primary Products
040000	Mineral Resources (Excl. Energy)
050000	Energy Resources
060000	Energy Supply
070000	Manufacturing
080000	Construction
090000	Transport
100000	Information and Communication Services
110000	Commercial Services
120000	Economic Framework
130000	Health
140000	Education and Training
150000	Social Development and Community Services
160000	Environmental Knowledge
170000	Environmental Aspects of Economic Development
180000	Environmental Management and Other Aspects
190000	Natural Sciences, Technologies and Engineering
200000	Social Sciences and Humanities

6. Subdivisions, groups and classes are all assigned six-digit codes. Subdivisions are uniquely identified by the first two digits and the remainder of the code is zero filled. Groups are uniquely identified by the first four digits and the remainder of the code is zero filled. Classes have unique six-digit codes.
7. There are ninety-nine possible categories at the subdivision, group and class levels to allow for future expansion of the classification. The divisions are not reflected in the code system at the subdivision or finer levels.

Diagram 3: SOCIO-ECONOMIC OBJECTIVE CLASSIFICATION



Source: Department of Industry, Technology and Regional Development
Science and Technology Policy Branch 1993
Enquiries: Stephen Ullick (06) 2761252

Guidelines for classifying R&D by SEO

8. The following general procedures are aimed to ensure consistent and successful classification of R&D data.

9. A Research Project is to be allocated to a class in a hierarchical manner. This is achieved by first determining the SEO division in which the research is being performed, then the most relevant subdivision within that division, then the most relevant group within that subdivision, and finally by selecting the relevant class within a chosen group.

10. It is vital to firstly identify the higher level classifications for the Research Project as some classes, although within different groups, have identical class titles.

11. In general, a Research Project is to be classified to one class only. There are cases however where a large Research Project is directed towards more than one socio-economic objective. In such cases, the aim should be to allocate R&D resources on a proportional basis.

12. Where within a group a defined class cannot be identified for a Research Project, the 'Other' or 'n.e.c.' category at the class level is to be used.

13. Any Research Project which falls into the category pure basic research (Type of Activity Classification) is to be classified to the appropriate class in Division 5 Advancement of Knowledge.

Comparison with the FRASCATI Manual Categories

14. The comparison below is an indication of the general relationship between the SEO and Frascati Manual categories. It is not an exact concordance.

SEO	FRASCATI
1 Defence	Defence
2 Economic Development	Development of agriculture, forestry and fishing Promotion of industrial development Production and rational use of energy Transport and communication Exploration and exploitation of the earth and the atmosphere Civil space
3 Society	Urban and rural planning Health Social development and services
4 Environment	Protection of the environment
5 Advancement of Knowledge	General advancement of knowledge

Relationship between the SEO Classification and the ANZSIC

15. In studying industry performance, it is possible to compare trends in industry with the levels of R&D directed towards particular industries. ABS statistics have been compiled according to the Australian Standard Industrial Classification (ASIC). This classification has been revised in co-operation with the Department of Statistics of New Zealand. The resultant Australian and New Zealand Standard Industrial Classification (ANZSIC) is to be implemented in both countries progressively, commencing in 1993.

16. A broad comparison with the ANZSIC categories is shown below. A detailed concordance between the SEO Classification and the ANZSIC can be obtained on request from the ABS.

SEO	ANZSIC
1 Defence	Subdivision 82 Defence
2 Economic Development	<div>Division A Agriculture, Forestry, Fishing and Hunting</div> <div>Division B Mining</div> <div>Division C Manufacturing</div> <div>Division D Electricity, Gas and Water Supply</div> <div>Division E Construction</div> <div>Division F Wholesale Trade</div> <div>Division G Retail Trade</div> <div>Division H Accommodation, Cafes and Restaurants</div> <div>Division I Transport and Storage</div> <div>Division J Communication Services</div> <div>Division K Finance and Insurance</div> <div>Division L Property and Business Services</div>
3 Society	<div>Subdivision 81 Government Administration</div> <div>Division L Education</div> <div>Division P Cultural and Recreational Services</div> <div>Subdivision 96 Other Services</div>
4 Environment	n.a
5 Advancement of Knowledge	n.a.

17. The ANZSIC is a classification of industries. Business units reporting data to a range of ABS censuses and surveys are classified to the ANZSIC on the basis of their predominant economic activity (e.g. what they do to generate income). Normally income is generated through the sale of goods and services produced by the business or bought in from other businesses. An industry as represented in ABS statistics is made up of businesses which are classified to it in accordance with the ANZSIC.

18. When comparing R&D data classified by the SEO with industrial statistics based on the ANZSIC, there are some important considerations to be noted, as follows:

(i) Classifying to an SEO category is subjective, i.e. the category is chosen by the data provider to indicate the main purpose of R&D. Classifying a business to an industry is generally derived objectively through its main income generating activity.

(ii) SEO categories do not always correspond with ANZSIC categories on a one to one basis and do not also necessarily correspond with identifiable target industries. For example where the environment is the main potential beneficiary of the R&D, there is no set of business units equivalent and therefore no ANZSIC class is applicable.

(iii) Some SEO categories are too broad and cannot be correlated to ANZSIC industries. For example, R&D towards improving road safety has potential benefits to a wide range of industries, community services and individuals. Whilst there would be some effect on businesses within the transport industry this may be incidental to attempts at generally reducing the burden on emergency services, medical services, insurance services, disability allowances, police services, legal services, etc.

(iv) The nature of R&D is such that there may be no observable effect on ABS industry level statistics or at least the effect may be difficult to assess. The positive effects of R&D may be concealed at the aggregate industry level because of variance, for a variety of reasons, in data from establishments in the same industry. Additionally, in particular instances, R&D may not lead to initiatives which proceed beyond the test environment.

SOCIO-ECONOMIC OBJECTIVE

CLASSIFICATION

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO ECONOMIC OBJECTIVE

DIVISION 1 DEFENCE
Group Class Title

SUBDIVISION 010000 DEFENCE

010100 DEFENCE

010101 Electronics
010102 Surveillance
010103 Weapons systems
010104 Aeronautics
010105 Materials
010199 Defence n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group	Class	Title
SUBDIVISION	020000	PLANT PRODUCTION AND PLANT PRIMARY PRODUCTS
020100		FIELD CROPS
	020101	Wheat
	020102	Barley
	020103	Rice
	020104	Other cereals
	020105	Oilseeds and grain legumes
	020106	Sugar
	020107	Cotton
	020199	Field crops n.e.c.
020200		HORTICULTURAL CROPS
	020201	Stone fruit
	020202	Pome fruit
	020203	Citrus
	020204	Grapes
	020205	Tropical fruit
	020206	Berry fruit
	020207	Tree nuts
	020208	Vegetables
	020209	Ornamentals, Australian natives and nursery plants
	020299	Horticultural crops n.e.c.
020300		FORESTRY
	020301	Native forests
	020302	Softwood plantations
	020303	Hardwood plantations
	020304	Harvesting and transport of forest products
	020399	Forestry n.e.c.
020400		PRIMARY PRODUCTS FROM PLANTS
	020401	Fresh fruit and vegetables (post harvest)
	020402	Unprocessed cereals
	020403	Tobacco leaf
	020404	Cotton lint and cotton seed
	020499	Primary plant products n.e.c.
SUBDIVISION	030000	ANIMAL PRODUCTION AND ANIMAL PRIMARY PRODUCTS
030100		LIVESTOCK
	030101	Sheep - meat
	030102	Sheep - wool
	030103	Beef cattle
	030104	Dairy cattle
	030105	Pigs and poultry
	030106	Minor livestock (e.g. horses, goats, deer)
	030199	Livestock n.e.c.
030200		PASTURE, BROWSE AND FODDER CROPS
	030201	Sown legumes
	030202	Sown grasses
	030203	Browse crops
	030204	Fodder crops
	030205	Native vegetation
	030299	Other
030300		FISHING
	030301	Fisheries - commercial
	030302	Fisheries - recreational
	030303	Aquaculture
	030399	Fishing n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group	Class	Title
SUBDIVISION 030000 ANIMAL PRODUCTION AND ANIMAL PRIMARY PRODUCTS - continued		
030400		PRIMARY PRODUCTS FROM ANIMALS
030401		Minimally processed fish
030402		Minimally processed milk
030403		Raw wool
030404		Hides and skins
030499		Primary animal products n.e.c.
SUBDIVISION 040000 MINERAL RESOURCES (EXCL. ENERGY)		
040100		EXPLORATION
040101		Iron ores (i.e. ferrous ores)
040102		Aluminium ores
040103		Precious (noble) metal ores
040104		Titanium minerals, zircon, and rare earth metal ores (e.g. monazite)
040105		Other non-ferrous ores (e.g. copper, zinc)
040106		Stone and clay
040199		Other non-metallic minerals (incl. diamonds)
040200		PRIMARY MINING AND EXTRACTION PROCESSES
040201		Iron ores (i.e. ferrous ores)
040202		Aluminium ores
040203		Precious (noble) metal ores
040204		Titanium minerals, zircon, and rare earth metal ores (e.g. monazite)
040205		Other non-ferrous ores (e.g. copper, zinc)
040206		Stone and clay
040299		Other non-metallic minerals (incl. diamonds)
040300		FIRST STAGE TREATMENT OF ORES AND MINERALS
040301		Beneficiation or dressing of iron ores
040302		Alumina production
040303		Other beneficiation of bauxite and aluminium ores
040304		Concentrating processes of other base metal ores
040305		Production of unrefined precious metal ingots and concentrates
040306		Beneficiation or dressing of non-metallic minerals (incl. diamonds)
040399		Other
SUBDIVISION 050000 ENERGY RESOURCES		
050100		EXPLORATION
050101		Uranium
050102		Coal
050103		Oil and gas
050104		Oil shale and tar sands
050199		Other
050200		MINING AND EXTRACTION
050201		Uranium
050202		Coal
050203		Oil and gas
050204		Oil shale and tar sands
050299		Other
050300		PREPARATION AND SUPPLY OF ENERGY SOURCE MINERALS
050301		Uranium
050302		Coal
050303		Oil and gas
050304		Oil shale and tar sands
050399		Energy minerals n.e.c.
059900		OTHER
059999		Other (e.g. safety)

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group	Class	Title
SUBDIVISION	060000	ENERGY SUPPLY
	060100	ENERGY TRANSFORMATION
	060101	Coal - electricity
	060102	Coal - conversion to liquid fuels
	060103	Coal - other purposes
	060104	Nuclear
	060105	Refined oil and gas
	060106	Gas - conversion to liquid fuels
	060107	Oil shale and tar sands - conversion to liquid fuels
	060199	Energy transformation n.e.c.
	060200	RENEWABLE ENERGY
	060201	Hydro-electric
	060202	Wind
	060203	Ocean
	060204	Solar-thermal
	060205	Solar-photoelectric
	060206	Solar-thermal electric
	060299	Renewable energy n.e.c. (e.g. geothermal)
	060300	ENERGY DISTRIBUTION
	060301	Electricity transmission
	060302	Gas distribution
	060303	Energy storage
	060304	Energy systems analysis
	060399	Energy distribution n.e.c.
	060400	CONSERVATION AND EFFICIENCY
	060401	Industry
	060402	Residential and commercial
	060403	Transport
	060499	Other
	069900	OTHER
	069999	Other
SUBDIVISION	070000	MANUFACTURING
	070100	PROCESSED FOOD PRODUCTS AND BEVERAGES
	070101	Carcass meat
	070102	Meat products
	070103	Fish products
	070104	Fruit and vegetable products (incl. fruit juices)
	070105	Dairy products
	070106	Oils and fats (incl. margarines)
	070107	Grain mill products, starch and starch products (incl. sugar, bakery products)
	070108	Beverages (e.g. alcohol, wines, soft drinks, excl. fruit juices)
	070199	Processed food products and beverages n.e.c.
	070200	FIBRE PROCESSING AND TEXTILES; FOOTWEAR AND LEATHER PRODUCTS
	070201	Cotton ginning
	070202	Wool scouring and top making
	070203	Natural yarns and fabrics
	070204	Synthetic fibres, yarns and fabrics
	070205	Other fibre processing and textiles
	070206	Processed skins, leather and leather products n.e.c.
	070207	Clothing
	070208	Footwear
	070299	Other

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group	Class	Title
SUBDIVISION	070000	MANUFACTURING -- continued
070300		WOOD, WOOD PRODUCTS AND PAPER
	070301	Hardwood sawing and veneer
	070302	Softwood sawing and veneer
	070303	Pulp and paper
	070304	Reconstituted products (e.g. chipboard, particle board)
	070305	Woodchips
	070306	Wood products n.e.c.
	070307	Paper products
	070308	Printing and publishing processes
	070399	Other
070400		HUMAN PHARMACEUTICAL PRODUCTS
	070401	Prevention - biologicals (e.g. vaccines)
	070402	Diagnostics
	070403	Treatments (e.g. chemicals, antibiotics)
	070499	Other
070500		VETERINARY PHARMACEUTICAL PRODUCTS
	070501	Prevention - biologicals (e.g. vaccines)
	070502	Diagnostics
	070503	Treatments (e.g. chemicals, antibiotics)
	070599	Other (incl. production enhancement)
070600		AGRICULTURAL CHEMICALS
	070601	Chemical fertilisers
	070602	Crop and animal protection chemicals
	070699	Agricultural chemicals n.e.c.
070700		INDUSTRIAL CHEMICALS AND RELATED PRODUCTS
	070701	Industrial gases
	070702	Synthetic resins and rubber
	070703	Rubber products
	070704	Plastics in primary forms
	070705	Plastic products (incl. construction materials)
	070706	Organic industrial chemicals n.e.c.
	070707	Inorganic industrial chemicals
	070708	Paints
	070709	Soaps and cosmetics
	070710	Bituminous products
	070711	Lubricants
	070799	Other
070800		BASIC METAL PRODUCTS (INCL. SMELTING)
	070801	Iron and steel (e.g. ingots, bars, rods, shapes and sections)
	070802	Aluminium
	070803	Precious metals (e.g. refined bullion, wire and strip)
	070899	Other non-ferrous metals (e.g. copper, zinc)
070900		CERAMICS, GLASS AND INDUSTRIAL MINERAL PRODUCTS
	070901	Ceramics
	070902	Structural glass and glass products
	070903	Clay products
	070904	Cement and concrete products
	070999	Ceramics, glass and industrial mineral products n.e.c.
071000		FABRICATED METAL PRODUCTS
	071001	Structural metal products
	071002	Sheet metal products
	071003	Semi-finished products
	071004	Castings
	071005	Machined products
	071099	Fabricated metal products n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group	Class	Title
SUBDIVISION	070000	MANUFACTURING -- continued
071100		TRANSPORT EQUIPMENT
	071101	Automotive equipment
	071102	Rail equipment
	071103	Nautical equipment
	071104	Aerospace equipment
	071199	Transport equipment n.e.c.
071200		COMPUTER HARDWARE AND ELECTRONIC EQUIPMENT
	071201	Integrated circuits and devices
	071202	Modules - special and attached processors
	071203	Modules - other processes
	071204	Electronic office equipment
	071205	Computer equipment
	071206	Integrated systems
	071299	Computer hardware and electronic equipment n.e.c.
071300		COMMUNICATION EQUIPMENT
	071301	Broadcasting equipment
	071302	Postal equipment
	071303	Voice equipment
	071304	Data, image and text equipment
	071305	Network transmission equipment
	071306	Network switching equipment
	071399	Communication equipment n.e.c.
071400		INSTRUMENTATION
	071401	Scientific instrumentation
	071402	Medical instrumentation
	071403	Industrial instrumentation
	071404	Photographic equipment
	071499	Instrumentation n.e.c.
071500		MACHINERY AND EQUIPMENT
	071501	Agricultural machinery and equipment
	071502	Mining machinery and equipment
	071503	Appliances and electrical machinery and equipment
	071504	Industrial machinery and equipment
	071505	Construction machinery and equipment
	071599	Machinery and equipment n.e.c.
079900		OTHER MANUFACTURED PRODUCTS
	079901	Tobacco products
	079902	Furniture
	079903	Prefabricated buildings
	079999	Manufactured Products n.e.c.
SUBDIVISION	080000	CONSTRUCTION
080100		PLANNING
	080101	Housing
	080102	Commercial
	080103	Civil
	080104	Industrial
	080199	Other
080200		DESIGN
	080201	Housing
	080202	Commercial
	080203	Civil
	080204	Industrial
	080299	Other

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group	Class	Title
SUBDIVISION	080000	CONSTRUCTION -- continued
080300		MATERIALS PERFORMANCE AND PROCESSES
	080301	Stone, ceramics and clay materials
	080302	Cement and concrete materials
	080303	Polymeric materials (e.g. paints)
	080304	Timber materials
	080305	Metals (composites, coatings, bonding, etc.)
	080399	Other
080400		CONSTRUCTION PROCESSES
	080401	Housing
	080402	Commercial
	080403	Civil
	080404	Industrial
	080499	Other
080500		BUILDING MANAGEMENT AND SERVICES
	080501	Housing
	080502	Commercial
	080503	Civil
	080504	Industrial
	080599	Other
SUBDIVISION	090000	TRANSPORT
090100		GROUND TRANSPORT
	090101	Road safety
	090102	Other road transport
	090103	Rail transport
	090199	Ground transport n.e.c.
090200		WATER TRANSPORT
	090201	International sea transport
	090202	Coastal water transport
	090203	Inland water transport
090300		AIR TRANSPORT
	090301	Air transport
	090302	Space transport
099900		OTHER TRANSPORT
	099901	Multimodal transport
	099902	Intermodal materials handling
	099999	Transport n.e.c.
SUBDIVISION	100000	INFORMATION AND COMMUNICATION SERVICES
100100		COMPUTER SOFTWARE AND SERVICES
	100101	Application packages
	100102	Application tools and system utilities
	100103	Information processing services
	100199	Computer software and services n.e.c.
100200		OTHER INFORMATION SERVICES
	100201	Library and related information services
	100299	Information services n.e.c.
100300		COMMUNICATION SERVICES
	100301	Broadcasting
	100302	Telecommunications
	100303	Postal communications
	100399	Communications services n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group	Class	Title
SUBDIVISION	110000	COMMERCIAL SERVICES
	110100	ELECTRICITY, GAS AND WATER SERVICES AND UTILITIES
	110101	Electricity services and utilities
	110102	Gas services and utilities
	110103	Water services and utilities
	110200	WASTE MANAGEMENT AND RECYCLING
	110201	Waste management
	110202	Recycling
	110299	Other
	110300	WHOLESALE AND RETAIL TRADE
	110301	Wholesale
	110302	Retail trade
	110400	FINANCE, PROPERTY AND BUSINESS SERVICES
	110401	Finance and investment services
	110402	Insurance services
	110403	Property and business services
	119900	OTHER COMMERCIAL SERVICES
	119901	Recreational services
	119902	Tourism services
	119903	Commercial security services
	119999	Commercial services n.e.c.
SUBDIVISION	120000	ECONOMIC FRAMEWORK
	120100	MACROECONOMIC ISSUES
	120101	Fiscal policy
	120102	Monetary policy
	120103	Exchange rates
	120104	Balance of payments
	120105	Income policy
	120106	Taxation
	120199	Macroeconomic issues n.e.c.
	120200	MICROECONOMIC ISSUES
	120201	Microeconomic effects of taxation
	120202	Consumption
	120203	Industrial organisations
	120204	Industry policy
	120205	Industry costs and structure
	120299	Microeconomic issues n.e.c.
	120300	INTERNATIONAL TRADE ISSUES
	120301	Trade policy
	120302	Assistance and protection
	120303	International agreements on trade
	120399	International trade issues n.e.c.
	120400	MANAGEMENT AND PRODUCTIVITY ISSUES
	120401	Marketing
	120402	Industrial relations
	120403	Management
	120404	Productivity
	120500	MEASUREMENT STANDARDS AND CALIBRATION SERVICES
	120501	Defence standards and calibrations
	120502	Manufacturing standards and calibrations
	120503	Service industries standards and calibrations
	120599	Measurement standards and calibration services n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

SOCIO-ECONOMIC OBJECTIVE

DIVISION 2 ECONOMIC DEVELOPMENT

Group Class Title

SUBDIVISION 120000 ECONOMIC FRAMEWORK - continued

129900 OTHER ECONOMIC ISSUES

129999 Other economic issues

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 3 SOCIETY
Group Class Title

SUBDIVISION 130000 HEALTH

130100 CLINICAL (ORGANS, DISEASES AND CONDITIONS)

- 130101 Infectious diseases
- 130102 Immune system and allergy
- 130103 Blood disorders
- 130104 Neurological disorders
- 130105 Endocrine diseases (incl. diabetes)
- 130106 Cardiovascular diseases
- 130107 Inherited diseases
- 130108 Cancer and related disorders
- 130109 Surgical methods and procedures
- 130110 Respiratory diseases (incl. asthma)
- 130111 Hearing, vision and speech
- 130112 Oro-dental
- 130113 Digestive system
- 130114 Arthritis, bone and joint disorders
- 130115 Kidney diseases
- 130116 Reproductive medicine
- 130117 Skin and related conditions
- 130118 Other organs, diseases and conditions
- 130199 Clinical health not specific to particular organs, diseases and conditions

130200 PUBLIC HEALTH

- 130201 Women's health
- 130202 Health related to ageing
- 130203 Child health
- 130204 Aboriginal health
- 130205 Substance abuse
- 130206 Occupational health (excl. economic development aspects)
- 130207 Environmental health
- 130208 Mental health
- 130209 Disease distribution and transmission
- 130210 Preventive medicine
- 130211 Dental health
- 130212 Nutrition
- 130213 Food safety
- 130214 Health status (e.g. indicators of "well-being")
- 130215 Social structure and health
- 130216 Behaviour and health
- 130299 Public health n.e.c.

130300 HEALTH AND SUPPORT SERVICES

- 130301 Health education and promotion
- 130302 Nursing
- 130303 Occupational, speech and physiotherapy
- 130304 Palliative care
- 130305 Diagnostic methods
- 130306 Evaluation of health outcomes
- 130307 Health policy evaluation
- 130308 Health policy economic outcomes
- 130399 Health and support services n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 3 SOCIETY
Group Class Title

SUBDIVISION	140000	EDUCATION AND TRAINING
140100		EARLY CHILDHOOD AND PRIMARY EDUCATION
	140101	Early childhood education
	140102	Primary education
140200		SECONDARY EDUCATION
	140201	Secondary education
140300		HIGHER EDUCATION
	140301	Higher education
140400		TECHNICAL AND FURTHER EDUCATION
	140401	Technical and further education
140500		SPECIAL EDUCATION
	140501	Handicapped education
	140502	Disadvantaged education
	140599	Special education n.e.c.
149900		OTHER EDUCATION
	149901	Occupational training
	149902	Continuing education
	149903	Education policy
	149999	Education and training n.e.c.
SUBDIVISION	150000	SOCIAL DEVELOPMENT AND COMMUNITY SERVICES
150100		COMMUNITY SERVICES
	150101	Unemployment (excl. industrial relations, occupational health)
	150102	Aboriginal development and welfare
	150103	Aged persons development and welfare
	150104	Carers development and welfare (i.e. carers for the aged, disabled)
	150105	Disabled persons development and welfare
	150106	Family development and welfare
	150107	Migrant development and welfare
	150108	Youth/child development and welfare
	150199	Community services n.e.c.
150200		PUBLIC SERVICES
	150201	Consumer affairs
	150202	Law reform
	150203	Law enforcement
	150204	Corrective services
	150299	Public services n.e.c.
150300		ART, SPORT AND RECREATION
	150301	Artistic endeavours
	150302	Sport
	150303	Recreation
150400		INTERNATIONAL RELATIONS
	150401	International relations (e.g. diplomacy, peace)
	150402	International aid and issues to benefit other countries
	150499	International relations n.e.c.
150500		ETHICAL ISSUES
	150501	Bioethics
	150502	Business ethics
	150599	Ethical issues n.e.c.
159900		OTHER SOCIAL DEVELOPMENT AND COMMUNITY SERVICES
	159999	Other social development and community services

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 4 ENVIRONMENT

Group	Class	Title
SUBDIVISION	160000	ENVIRONMENTAL KNOWLEDGE
160100		CLIMATE AND ATMOSPHERE
	160101	Climate change (incl. causes and results of enhanced greenhouse effect and other human-induced trends in climate such as ozone depleting substances)
	160102	Climate variability
	160103	Weather
	160104	Atmospheric composition
	160105	Atmospheric processes (incl. chemical, physical and biological)
	160199	Other
160200		OCEAN
	160201	Oceanic composition
	160202	Oceanic processes (incl. chemical, physical and biological)
	160299	Other
160300		WATER
	160301	Groundwater
	160302	Freshwater
	160303	Brackish
	160304	Inshore
	160305	Offshore
	160399	Other
160400		LAND
	160401	High country (incl. mountains)
	160402	Forest and wooded lands
	160403	Farmland (incl. arable land and permanent crop land)
	160404	Sparseland (incl. permanent grassland and the arid zone)
	160405	Urban areas
	160406	Coastal zone
	160407	Mineral enclave
	160408	Antarctic and sub-Antarctic areas
	160499	Other (incl. islands)
160500		NATURE CONSERVATION
	160501	Flora
	160502	Fauna
	160503	Terrestrial ecosystems
	160504	Freshwater ecosystems
	160505	Marine ecosystems
	160506	Estuarine ecosystems
	160599	Other
160600		SOCIAL ENVIRONMENT
	160601	Social development
	160602	Community services
	160603	Education and training
	160604	Environmental health
	160605	Protected areas (incl. world heritage areas, national parks, conservation areas, nature reserves, scientific sites, heritage sites, wilderness areas, anthropological sites, archaeological sites, aboriginal sacred sites, marine reserves and national estate sites)
	160606	Environmental hazards (incl. droughts, cyclones and floods, earthquakes and bush fires)
	160699	Other
169900		OTHER ENVIRONMENTAL KNOWLEDGE
	169999	Other environmental knowledge

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

DIVISION 4 ENVIRONMENT

Group	Class	Title
SUBDIVISION	170000	ENVIRONMENTAL ASPECTS OF ECONOMIC DEVELOPMENT
	170100	PLANT PRODUCTION AND PLANT PRIMARY PRODUCTS (INCL. FORESTRY)
	170101	Climate and atmosphere
	170102	Ocean
	170103	Water
	170104	Land
	170105	Nature conservation
	170106	Social environment
	170199	Other
	170200	ANIMAL PRODUCTION AND ANIMAL PRIMARY PRODUCTS (INCL. FISHING)
	170201	Climate and atmosphere
	170202	Ocean
	170203	Water
	170204	Land
	170205	Nature conservation
	170206	Social environment
	170299	Other
	170300	MINERAL RESOURCES (EXCL. ENERGY)
	170301	Climate and atmosphere
	170302	Ocean
	170303	Water
	170304	Land
	170305	Nature conservation
	170306	Social environment
	170399	Other
	170400	ENERGY RESOURCES
	170401	Climate and atmosphere
	170402	Ocean
	170403	Water
	170404	Land
	170405	Nature conservation
	170406	Social environment
	170499	Other.
	170500	ENERGY SUPPLY
	170501	Climate and atmosphere
	170502	Ocean
	170503	Water
	170504	Land
	170505	Nature conservation
	170506	Social environment
	170599	Other
	170600	MANUFACTURING
	170601	Climate and atmosphere
	170602	Ocean
	170603	Water
	170604	Land
	170605	Nature conservation
	170606	Social environment
	170699	Other

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SOCIO-ECONOMIC OBJECTIVE

DIVISION 4 ENVIRONMENT

Group	Class	Title
SUBDIVISION	170000	ENVIRONMENTAL ASPECTS OF ECONOMIC DEVELOPMENT -- continued
170700		CONSTRUCTION
	170701	Climate and atmosphere
	170702	Ocean
	170703	Water
	170704	Land
	170705	Nature conservation
	170706	Social environment
	170799	Other
170800		TRANSPORT
	170801	Climate and atmosphere
	170802	Ocean
	170803	Water
	170804	Land
	170805	Nature conservation
	170806	Social environment
	170899	Other
170900		INFORMATION AND COMMUNICATION SERVICES
	170901	Climate and atmosphere
	170902	Ocean
	170903	Water
	170904	Land
	170905	Nature conservation
	170906	Social environment
	170999	Other
171000		COMMERCIAL SERVICES
	171001	Climate and atmosphere
	171002	Ocean
	171003	Water
	171004	Land
	171005	Nature conservation
	171006	Social environment
	171099	Other
171100		ENVIRONMENTAL ECONOMIC FRAMEWORK
	171101	Resource management issues (incl. demand, pricing, rents, conflicts)
	171199	Other environment/economic aspects (incl. risk assessment and economic incentives for environmental protection, e.g. taxes and permits)
SUBDIVISION	180000	ENVIRONMENTAL MANAGEMENT AND OTHER ASPECTS
180100		ENVIRONMENTAL MANAGEMENT
	180101	Global climate change adaptation measures
	180102	Environmental policy and standards
	180103	Management of protected areas
	180104	Control of human-induced environmental hazards (e.g. industrial accidents)
	180105	Ecologically sustainable development implementation actions
	180106	Environmental education and awareness
	180107	Control of exotic species
	180199	Other
189900		OTHER ENVIRONMENTAL ASPECTS
	189999	Other Environmental Aspects

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION

SOCIO-ECONOMIC OBJECTIVE

DIVISION 5 ADVANCEMENT OF KNOWLEDGE¹

Group	Class	Title
SUBDIVISION	190000	NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING
190100		MATHEMATICAL SCIENCES
	190101	Mathematical sciences
190200		PHYSICAL SCIENCES
	190201	Physical sciences
190300		CHEMICAL SCIENCES
	190301	Chemical sciences
190400		EARTH SCIENCES
	190401	Earth sciences
190500		INFORMATION, COMPUTER AND COMMUNICATION TECHNOLOGIES
	190501	Information, computer and communication technologies
190600		APPLIED SCIENCES AND TECHNOLOGIES
	190601	Applied sciences and technologies
190700		GENERAL ENGINEERING
	190701	General Engineering
190800		BIOLOGICAL SCIENCES
	190801	Biological sciences
190900		AGRICULTURAL SCIENCES
	190901	Agricultural sciences
191000		MEDICAL AND HEALTH SCIENCES
	191001	Medical and health sciences
SUBDIVISION	200000	SOCIAL SCIENCES AND HUMANITIES
200100		SOCIAL SCIENCES
	200101	Social sciences
200200		HUMANITIES
	200201	Humanities

¹ Only research projects that are predominantly 'pure basic research' can be classified to Division 5 Advancement of Knowledge.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE
DEFINITIONS

DIVISION 1 DEFENCE
Subdivision 010000 Defence
Group 010100 Defence

This division covers R&D directed towards the development of defence or national security, including R&D undertaken for military reasons regardless of their content or whether they have secondary civil applications; and towards the development and testing of military or defence related equipment and materials.

It includes nuclear and space R&D undertaken for military purposes.

Group 010100 Defence has six classes:

- 010101 Electronics
- 010102 Surveillance
- 010103 Weapons systems
- 010104 Aeronautics
- 010105 Materials
- 010199 Defence n.e.c.

Exclusions: R&D directed towards (a) improving the methods of producing or processing military or defence related equipment and materials is included in the appropriate groups in Division 2 Economic Development, e.g. military transport equipment is included in Group 071100 Transport Equipment; (b) the development of measurement standards and calibration for defence related products and processes is also included in Division 2 Economic Development, Subdivision 120000 Economic Framework, Group 120500 Measurement Standards and Calibration Services; and (c) civil oriented projects although funded by defence agencies is included in the appropriate groups in other divisions, e.g. communication is included in Subdivision 100000 Information and Communication Services, Group 100300 Communication Services.

DIVISION 2 ECONOMIC DEVELOPMENT

This division covers R&D directed towards the various areas of economic development. Such R&D is undertaken in support of plant and animal production, developing mineral and energy resources, energy provision or supply and the development of manufacturing industry, construction industry and transportation systems (incl. safety), the provision of information and communication, the provision of commercial services to all areas of economic development and the contribution to understanding the economic framework within which development takes place.

R&D directed towards improving the methods of production or processing military or defence materials and equipment is included in this division.

This division has eleven subdivisions:

- 020000 Plant Production and Plant Primary Products
- 030000 Animal Production and Animal Primary Products
- 040000 Mineral Resources (Excl. Energy)
- 050000 Energy Resources
- 060000 Energy Supply
- 070000 Manufacturing
- 080000 Construction
- 090000 Transport
- 100000 Information and Communication Services
- 110000 Commercial Services
- 120000 Economic Framework

Exclusions: R&D directed towards (a) the development and testing of military or defence related equipment and materials is included in Division 1 Defence; (b) the environmental management aspects of economic development is included in Division 4 Environment, Subdivision 170000 Environmental Aspects of Economic Development; and (c) pure basic research in agricultural sciences is included in Division 5 Advancement of Knowledge, Group 190900 Agricultural Sciences.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

SUBDIVISION 020000 PLANT PRODUCTION AND PLANT PRIMARY PRODUCTS

This subdivision covers R&D directed towards improving the propagation and growing of field and horticultural crops, native forest, hardwood and softwood plantations; and the production of associated primary plant products.

This subdivision also includes R&D directed towards improving the post-harvest processing, preparation, handling, storage and marketing of primary plant products.

This subdivision has four groups:

- 020100 Field crops
- 020200 Horticultural Crops
- 020300 Forestry
- 020400 Primary Products from Plants

Exclusions: R&D directed towards the (a) manufacture of processed plant products and their primary products is included in Subdivision 070000 Manufacturing; and (b) environmental management aspects of plant production is included in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 020100 FIELD CROPS

This group covers R&D directed towards improving the growing of wheat, barley, coarse grains, rice, oilseeds and grain legumes, sugar, cotton or other field crops.

This group includes R&D directed towards harvesting field crops.

This group has eight classes:

- 020101 Wheat
- 020102 Barley
- 020103 Rice
- 020104 Other cereals
- 020105 Oilseeds and grain legumes
- 020106 Sugar
- 020107 Cotton
- 020199 Field crops n.e.c.

Exclusions: R&D directed towards the (a) transportation, storage and marketing of primary products from field crops is included in Group 020400 Primary Products from Plants; (b) growing, harvesting and storage of pasture, browse or fodder crops is included in Group 030200 Pasture, Browse and Fodder Crops; (c) manufacture of processed products from field crops is included in either Group 070100 Processed Food Products and Beverages, Group 070200 Fibre Processing and Textiles; Footwear and Leather Products or Group 079900 Other Manufactured Products; and (d) environmental management aspects of growing field crops is included in Group 170100 Plant Production and Plant Primary Products (Incl. Forestry).

GROUP 020200 HORTICULTURAL CROPS

This group covers R&D directed towards the propagation and growing of stone and pome fruit, citrus, grapes, tropical and berry fruit, tree nuts, vegetables, ornamentals, Australian native plants, nursery plants and other horticultural crops.

This group includes R&D directed towards harvesting horticultural crops.

This group has ten classes:

- 020201 Stone fruit
- 020202 Pome fruit
- 020203 Citrus
- 020204 Grapes
- 020205 Tropical fruit
- 020206 Berry fruit
- 020207 Tree nuts

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
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GROUP 020200 HORTICULTURAL CROPS -- continued

- 020208 Vegetables
- 020209 Ornamentals, Australian natives and nursery plants
- 020299 Horticultural crops n.e.c.

Exclusions: R&D directed towards the (a) transportation, storage and marketing of primary horticultural products, including postharvest handling of fresh fruit and vegetables and other horticultural crops is included in Group 020400 Primary Products from Plants; (b) manufacture of processed products from horticultural crops is included in either Group 070100 Processed Food Products and Beverages or Group 079900 Other Manufactured Products; and (c) environmental management aspects of growing horticultural crops is included in Group 170100 Plant Production and Plant Primary Products (Incl. Forestry).

GROUP 020300 FORESTRY

This group covers R&D directed towards improving the operation, maintenance and protection (incl. forest fire-fighting and control) of native forests, softwood or hardwood plantations.

This group includes R&D directed towards the harvesting or transportation of wood and other forest products from forests and plantations.

This group has five classes:

- 020301 Native forests
- 020302 Softwood plantations
- 020303 Hardwood plantations
- 020304 Harvesting and transport of forest products
- 020399 Forestry n.e.c.

Exclusions: R&D directed towards the (a) processing or manufacture of wood, wood and paper products is included in either Group 070300 Wood, Wood Products and Paper or Group 079900 Other Manufactured Products; and (b) environmental management aspects of growing native or plantation forests (incl. native and exotic species not intended for timber or paper production) is included in Group 170100 Plant Production and Plant Primary Products (Incl. Forestry).

GROUP 020400 PRIMARY PRODUCTS FROM PLANTS

This group covers R&D directed towards improving post-harvest processing or handling (incl. transportation, storage and marketing) of fresh fruit or vegetables, unprocessed cereals, tobacco leaf, cotton lint, cotton seed and other primary plant products.

This group has five classes:

- 020401 Fresh fruit and vegetables (post harvest)
- 020402 Unprocessed cereals
- 020403 Tobacco leaf
- 020404 Cotton lint and cotton seed
- 020499 Primary plant products n.e.c.

Exclusions: R&D directed towards the (a) manufacture of processed products from primary plant products is included in either Group 070100 Processed Food Products and Beverages or Group 070200 Fibre Processing and Textiles; Footwear and Leather Products; (b) manufacture of tobacco products is included in Class 079901 Tobacco products; and (c) environmental management aspects of preparing or producing primary plant products is included in Group 170100 Plant Production and Plant Primary Products (Incl. Forestry).

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

SUBDIVISION 030000 ANIMAL PRODUCTION AND ANIMAL PRIMARY
PRODUCTS

This subdivision covers R&D directed towards breeding and farming livestock and the production of associated primary livestock products.

This subdivision includes R&D directed towards growing pasture, browse and fodder crops; commercial (incl. aquaculture) and recreational fishing; and the preparation, transportation and storage of primary livestock products such as carcass meat and raw wool.

This subdivision has four groups:

- 030100 Livestock
- 030200 Pasture, Browse and Fodder Crops
- 030300 Fishing
- 030400 Primary Products from Animals

Exclusions: R&D directed towards the (a) manufacture of processed animal products (incl. fish) and their primary products is included in the appropriate groups in Subdivision 070000 Manufacturing; and (b) environmental management aspects of livestock farming and production of primary animal products is included in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 030100 LIVESTOCK

This group covers R&D directed towards farming or breeding livestock including sheep for meat or wool, beef and dairy cattle, horses, pigs, poultry, deer, goats and other livestock (incl. beekeeping, pet breeding) not elsewhere classified.

This group has seven classes:

- 030101 Sheep - meat
- 030102 Sheep - wool
- 030103 Beef cattle
- 030104 Dairy cattle
- 030105 Pigs and poultry
- 030106 Minor livestock (e.g. horses, goats, deer)
- 030199 Livestock n.e.c.

Exclusions: R&D directed towards the (a) preparation, transportation, storage and marketing of primary livestock products, e.g. carcass meat, unprocessed milk, raw wool, raw hides and skins, is included in Group 030400 Primary Products from Animals; (b) manufacture of processed livestock products, e.g. processed milk and processed skins, is included in either Group 070100 Processed Food Products and Beverages, Group 070200 Fibre Processing and Textiles; Footwear and Leather Products or Group 079900 Other Manufactured Products; and (c) environmental management aspects of livestock farming and preparation of livestock products is included in Group 170200 Animal Production and Animal Primary Products (Incl. Fishing).

GROUP 030200 PASTURE, BROWSE AND FODDER CROPS

This group covers R&D directed towards growing sown legumes, sown grasses, browse and fodder crops, native vegetation and any other pasture crops. This group includes R&D directed towards harvesting, preparation and storage of pasture, browse and fodder crops.

This group has six classes:

- 030201 Sown legumes
- 030202 Sown grasses
- 030203 Browse crops
- 030204 Fodder crops
- 030205 Native vegetation
- 030299 Other

Exclusions: R&D directed towards (a) growing field crops is included in Group 020100 Field Crops; (b) propagating and growing horticultural crops is included in Group 020200 Horticultural Crops; and (c) the environmental management aspects of growing pasture and fodder crops is included in Group 170200 Animal Production and Animal Primary Products (Incl. Fishing).

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 030300 FISHING

This group covers R&D directed towards commercial and recreational fishing. This includes R&D directed towards fishing wild prawns, rock lobsters, and other marine species in the ocean, coastal and estuarine waters.

This group also includes R&D directed towards aquaculture or fish farming (incl. breeding or harvesting fish, crustaceans, oyster and other molluscs) in a controlled environment.

This group has four classes:

- 030301 Fisheries - commercial
- 030302 Fisheries - recreational
- 030303 Aquaculture
- 030399 Fishing n.e.c.

Exclusions: R&D directed towards the (a) preparation, transport, storage and marketing of minimally processed fish is included in Group 030400 Primary Products from Animals; (b) manufacture of processed fish products is included in either Group 070100 Processed Food Products and Beverages or Group 079900 Other Manufactured Products; and (c) environmental management aspects of fishing is included in Group 170200 Animal Production and Animal Primary Products (Incl. Fishing).

GROUP 030400 PRIMARY PRODUCTS FROM ANIMALS

This group covers R&D directed towards improving the preparation or handling (incl. transportation, storage and marketing) of primary livestock products such as carcass meat, minimally processed fish, unprocessed milk, raw wool and other animal fibres, hides and skins.

This group has five classes:

- 030401 Minimally processed fish
- 030402 Minimally processed milk
- 030403 Raw wool
- 030404 Hides and skins
- 030499 Primary animal products n.e.c.

Exclusions: R&D directed towards the (a) manufacture of processed products from primary livestock products is included in either Group 070100 Processed Food Products and Beverages, Group 070200 Fibre Processing and Textiles; Footwear and Leather Products or Group 079900 Other Manufactured Products; and (b) environmental management aspects of preparing or producing primary livestock products is included in Group 170200 Animal Production and Animal Primary Products (Incl. Fishing).

SUBDIVISION 040000 MINERAL RESOURCES (EXCL. ENERGY)

This subdivision covers R&D which primarily benefits or has application to the exploration, mining, extraction and processing of mineral resources.

This subdivision has three groups:

- 040100 Exploration
- 040200 Primary Mining and Extraction Processes
- 040300 First Stage Treatment of Ores and Minerals

Exclusions: R&D directed towards the (a) production of energy mineral resources is included in Subdivision 050000 Energy Resources; (b) manufacture of processed products from mineral resources (incl. refining and smelting) is included in Subdivision 070000 Manufacturing; and (c) environmental management aspects of exploring and mining mineral resources is included in Subdivision 170000 Environmental Aspects of Economic Development.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 040100 EXPLORATION

This group covers R&D directed towards exploration for minerals including iron ore, other base metals, bauxite and other non-ferrous metal ores, precious metal ores, diamonds and other precious and semi-precious stones, heavy mineral sands, stone, clay and other mineral and metal ores.

This group has seven classes:

- 040101 Iron ores (i.e. ferrous ores)
- 040102 Aluminium ores
- 040103 Precious (noble) metal ores
- 040104 Titanium minerals, zircon, and rare earth metal ores (e.g. monazite)
- 040105 Other non-ferrous ores (e.g. copper, zinc)
- 040106 Stone and clay
- 040199 Other non-metallic minerals (incl. diamonds)

Exclusions: R&D directed towards (a) exploration for energy minerals resources for the production of energy is included in Group 050100 Exploration; and (b) environmental management aspects of mineral resource exploration is included in Group 170300 Mineral Resources (Excl. Energy).

GROUP 040200 PRIMARY MINING AND EXTRACTION PROCESSES

This group covers R&D directed towards mining and extracting iron ore, other base metals, bauxite and other non-ferrous metal ores, precious metal ores, diamonds and other precious and semi-precious stones, heavy mineral sands, stone, clay and other mineral and metal ores.

This group has seven classes:

- 040201 Iron ores (i.e. ferrous ores)
- 040202 Aluminium ores
- 040203 Precious (noble) metal ores
- 040204 Titanium minerals, zircon, and rare earth metal ores (e.g. monazite)
- 040205 Other non-ferrous ores (e.g. copper, zinc)
- 040206 Stone and clay
- 040299 Other non-metallic minerals (incl. diamonds)

Exclusions: R&D directed towards (a) mining and extracting energy mineral resources for the production of energy is included in Group 050200 Mining and Extraction; and (b) the environmental management aspects of mining and extracting mineral resources is included in Group 170300 Mineral Resources (Excl. Energy).

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 040300 FIRST STAGE TREATMENT OF ORES AND MINERALS

This group covers R&D directed towards processing minerals, including beneficiated iron ore, other base metal intermediates, alumina and other non-ferrous metal intermediates, precious metals, heavy mineral sands and other mineral and metal ore intermediate products and processing diamonds and other precious and semi-precious stones prior to the cut gem stage.

This group has seven classes:

- 040301 Beneficiation or dressing of iron ores
- 040302 Alumina production
- 040303 Other beneficiation of bauxite and aluminium ores
- 040304 Concentrating processes of other base metal ores
- 040305 Production of unrefined precious metal ingots and concentrates
- 040306 Beneficiation or dressing of non-metallic minerals (incl. diamonds)
- 040399 Other

Exclusions: R&D directed towards the (a) preparation and supply of energy mineral resources for the production of energy is included in Group 050300 Preparation and Supply of Energy Source Minerals; (b) manufacture of processed mineral products (incl. refining and smelting) is included in Group 070800 Basic Metal Products (Incl. Smelting); and (c) environmental management aspects of processing mineral resources is included in Group 170300 Mineral Resources (Excl. Energy).

SUBDIVISION 050000 ENERGY RESOURCES

This subdivision covers R&D directed towards the exploration, mining, extraction, preparation and supply of energy mineral resources.

This subdivision has four groups:

- 050100 Exploration
- 050200 Mining and Extraction
- 050300 Preparation and Supply of Energy Source Minerals
- 059900 Other

Exclusions: R&D directed towards the (a) exploration, mining, extraction and processing of mineral resources other than used in the production and supply of energy is included in Subdivision 040000 Mineral Resources (Excl. Energy); (b) manufacture of processed products from energy resource minerals is included in Subdivision 070000 Manufacturing; and (c) environmental management aspects of exploring, mining, etc. energy resources is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 050100 EXPLORATION

This group covers R&D directed towards exploration for uranium, coal, oil and gas, oil shale and tar sands and other energy minerals used for the energy resource industry.

This group has five classes:

- 050101 Uranium
- 050102 Coal
- 050103 Oil and gas
- 050104 Oil shale and tar sands
- 050199 Other

Exclusions: R&D directed towards (a) exploration for non-energy mineral resources is included in Group 040100 Exploration, Subdivision 040000 Mineral Resources (Excl. Energy); and (b) the environmental management aspects of exploring energy resources is included in Group 170400 Energy Resources.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
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GROUP 050200 MINING AND EXTRACTION

This group covers R&D directed towards mining and extracting uranium, coal, oil and gas, oil shale and tar sands and other energy resource minerals.

This group has five classes:

- 050201 Uranium
- 050202 Coal
- 050203 Oil and gas
- 050204 Oil shale and tar sands
- 050299 Other

Exclusions: R&D directed towards (a) mining and extracting non-energy mineral resources is included in Group 040200 Primary Mining and Extraction Processes; and (b) the environmental management aspects of mining and extracting energy resources is included in Group 170400 Energy Resources.

GROUP 050300 PREPARATION AND SUPPLY OF ENERGY SOURCE MINERALS

This group covers R&D directed towards the preparation and supply of uranium, coal, oil and gas, oil shale and tar sands and other energy source mineral resources.

This group has five classes:

- 050301 Uranium
- 050302 Coal
- 050303 Oil and gas
- 050304 Oil shale and tar sands
- 050399 Energy minerals n.e.c.

Exclusions: R&D directed towards (a) processing non-energy mineral resources is included in Group 040300 First Stage Treatment of Ores and Minerals; and (b) the environmental management aspects of preparation and supply of energy source minerals is included in Group 170400 Energy Resources.

GROUP 059900 OTHER

This group covers R&D directed towards energy resources not elsewhere classified.

It has the one Class 059999 Other (e.g. safety).

SUBDIVISION 060000 ENERGY SUPPLY

This subdivision covers R&D directed towards renewable energy, energy production and supply, energy transformation, energy distribution and the conservation or efficient use of energy in the form of derived fuels such as petroleum products, electricity, town gas, coke and briquettes and in the form of heat energy.

This subdivision has five groups:

- 060100 Energy Transformation
- 060200 Renewable Energy
- 060300 Energy Distribution
- 060400 Conservation and Efficiency
- 069900 Other

Exclusions: R&D directed towards the (a) commercial provision of electricity, gas and water services and utilities is included in Subdivision 110000 Commercial Services; and (b) environmental management aspects of supplying energy is included in Subdivision 170000 Environmental Aspects of Economic Development.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 060100 ENERGY TRANSFORMATION

This group covers R&D directed towards the transformation of energy resource minerals such as coal, uranium, oil and gas into heat, steam or electricity; and the conversion of coal, natural gas, oil shale and tar sands to liquid fuels.

This group has eight classes:

- 060101 Coal - electricity
- 060102 Coal - conversion to liquid fuels
- 060103 Coal - other purposes
- 060104 Nuclear
- 060105 Refined oil and gas
- 060106 Gas - conversion to liquid fuels
- 060107 Oil shale and tar sands - conversion to liquid fuels
- 060199 Energy transformation n.e.c.

Exclusions: R&D directed towards the environmental management aspects of energy transformation is included in Group 170500 Energy Supply.

GROUP 060200 RENEWABLE ENERGY

This group covers R&D directed towards improving the generation and supply of renewable energy including hydro-electric energy, wind, ocean, geothermal, solar-thermal, solar-photoelectric, solar-thermal electric biomass and other forms of renewable energy.

This group has seven classes:

- 060201 Hydro-electric
- 060202 Wind
- 060203 Ocean
- 060204 Solar-thermal
- 060205 Solar-photoelectric
- 060206 Solar-thermal electric
- 060299 Renewable energy n.e.c. (e.g. geothermal)

GROUP 060300 ENERGY DISTRIBUTION

This group covers R&D directed towards improving energy distribution including electricity transmission, gas distribution and other forms of energy distribution (incl. distribution of manufactured gas through systems of mains).

This group includes R&D directed towards energy storage and energy systems analysis.

This group has five classes:

- 060301 Electricity transmission
- 060302 Gas distribution
- 060303 Energy storage
- 060304 Energy systems analysis
- 060399 Energy distribution n.e.c.

Exclusions: R&D directed towards the provision and management of services, such as electricity, gas and water services and utilities to commercial and residential premises is included in Group 110100 Electricity, Gas and Water Services and Utilities.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
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GROUP 060400 CONSERVATION AND EFFICIENCY

This group covers R&D directed towards the conservation and efficient use of energy in industry, transport, commerce and households.

This group has four classes:

- 060401 Industry
- 060402 Residential and commercial
- 060403 Transport
- 060499 Other

GROUP 069900 OTHER

This group covers R&D in energy supply which is not classified elsewhere (e.g. safety).

This group has the one Class 069999 Other.

SUBDIVISION 070000 MANUFACTURING

The subdivision covers R&D directed towards refining and developing processes or strategies for transforming processed or unprocessed materials or components into new products.

This subdivision includes R&D directed towards the manufacture of safe products.

This subdivision has sixteen groups:

- 070100 Processed Food Products and Beverages
- 070200 Fibre Processing and Textiles; Footwear and Leather Products
- 070300 Wood, Wood Products and Paper
- 070400 Human Pharmaceutical Products
- 070500 Veterinary Pharmaceutical Products
- 070600 Agricultural Chemicals
- 070700 Industrial Chemicals and Related Products
- 070800 Basic Metal Products (Incl. Smelting)
- 070900 Ceramics, Glass and Industrial Mineral Products
- 071000 Fabricated Metal Products
- 071100 Transport Equipment
- 071200 Computer Hardware and Electronic Equipment
- 071300 Communication Equipment
- 071400 Instrumentation
- 071500 Machinery and Equipment
- 079900 Other Manufactured Products

Exclusions: R&D directed towards (a) testing the performance, durability and life cycle of manufactured building materials delivered on construction sites is included in Subdivision 080000 Construction; (b) environmental health factors in manufacturing is included in Subdivision 130000 Health, Group 130200 Public Health; and (c) the environmental management aspects of manufacturing is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 070100 PROCESSED FOOD PRODUCTS AND BEVERAGES

This group covers R&D directed towards the manufacture of processed plant and animal food products, such as meat, fruit, vegetable and dairy products, fish, oils and fats, grain, bakery and grain mill products, sugar, alcoholic beverages and soft drinks.

This group has nine classes:

- 070101 Carcass meat
- 070102 Meat products
- 070103 Fish products
- 070104 Fruit and vegetable products (incl. fruit juices)
- 070105 Dairy products
- 070106 Oils and fats (incl. margarines)
- 070107 Grain mill products, starch and starch products (incl. sugar, bakery products)
- 070108 Beverages (e.g. alcohol, wines, soft drinks, excl. fruit juices)
- 070199 Processed food products and beverages n.e.c.

GROUP 070200 FIBRE PROCESSING AND TEXTILES; FOOTWEAR AND LEATHER PRODUCTS

This group covers R&D directed towards processing natural or synthetic fibres and the manufacture of fabrics, clothing, ropes and twines, floor coverings and other made-up textile products.

This group includes R&D directed towards leather tanning and fur dressing, the manufacture of footwear, processed skins, leather and leather products not classified elsewhere.

This group has nine classes:

- 070201 Cotton ginning
- 070202 Wool scouring and top making
- 070203 Natural yarns and fabrics
- 070204 Synthetic fibres, yarns and fabrics
- 070205 Other fibre processing and textiles
- 070206 Processed skins, leather and leather products n.e.c.
- 070207 Clothing
- 070208 Footwear
- 070299 Other

GROUP 070300 WOOD, WOOD PRODUCTS AND PAPER

This group covers R&D directed towards processing hardwood and softwood, log sawmilling, wood chipping, timber dressing and the manufacture of wood products such as wooden structural fittings, plywood and veneer and particle boards of wood.

This group includes R&D directed towards the manufacture of pulp, paper and paper products and towards printing and publishing (except printing and publishing newspapers).

This group has nine classes:

- 070301 Hardwood sawing and veneer
- 070302 Softwood sawing and veneer
- 070303 Pulp and paper
- 070304 Reconstituted products (e.g. chipboard, particle board)
- 070305 Woodchips
- 070306 Wood products n.e.c.
- 070307 Paper products
- 070308 Printing and publishing processes
- 070399 Other

Exclusions: R&D directed towards the (a) harvest and transportation of logs and forest products is included in Group 020300 Forestry; (b) prefabrication of wooden buildings and the manufacture of wooden furniture is included in Group 079900 Other Manufactured Products; and (c) printing and publishing of newspapers is included in Group 100300 Communication Services.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 070400 HUMAN PHARMACEUTICAL PRODUCTS

This group covers R&D directed towards the manufacture of pharmaceutical products for use in the prevention, diagnosis and treatment of human diseases.

This group has four classes:

- 070401 Prevention - biologicals (e.g. vaccines)
- 070402 Diagnostics
- 070403 Treatments (e.g. chemicals, antibiotics)
- 070499 Other

GROUP 070500 VETERINARY PHARMACEUTICAL PRODUCTS

This group covers R&D directed towards the manufacture of pharmaceutical products for use in the prevention, diagnosis and treatment of veterinary diseases.

This group has four classes:

- 070501 Prevention - biologicals (e.g. vaccines)
- 070502 Diagnostics
- 070503 Treatments (e.g. chemicals, antibiotics)
- 070599 Other (incl. production enhancement)

Exclusions: R&D directed towards the manufacture of insecticides for sheep or cattle is included in Group 070600 Agricultural Chemicals.

GROUP 070600 AGRICULTURAL CHEMICALS

This group covers R&D directed towards the manufacture of chemical fertilisers, pesticides, insecticides, weedicides and fungicides.

This group has three classes:

- 070601 Chemical fertilisers
- 070602 Crop and animal protection chemicals
- 070699 Agricultural chemicals n.e.c.

GROUP 070700 INDUSTRIAL CHEMICALS AND RELATED PRODUCTS

This group covers R&D directed towards the manufacture of industrial gases, synthetic resins and synthetic rubber, rubber and plastic products, organic and inorganic industrial chemicals, inks, paints, explosive, soaps and other detergents, cosmetics and other toiletry products.

It includes R&D directed towards petroleum refining, manufacture of bituminous products and lubricants.

This group has twelve classes:

- 070701 Industrial gases
- 070702 Synthetic resins and rubber
- 070703 Rubber products
- 070704 Plastics in primary forms
- 070705 Plastic products (incl. construction materials)
- 070706 Organic industrial chemicals n.e.c.
- 070707 Inorganic industrial chemicals
- 070708 Paints
- 070709 Soaps and cosmetics
- 070710 Bituminous products
- 070711 Lubricants
- 070799 Other

Exclusions: R&D directed towards the manufacture of (a) human pharmaceutical products is included in Group 070400 Human Pharmaceutical Products; (b) veterinary pharmaceutical products is included in Group 070500 Veterinary Pharmaceutical Products; and (c) agricultural chemicals is included in Group 070600 Agricultural Chemicals.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 070800 BASIC METAL PRODUCTS (INCL. SMELTING)

This group covers R&D directed towards the manufacture of ferrous and non-ferrous basic metal products, copper, lead, silver, zinc and other base metals, aluminium and precious metals.

It includes R&D directed towards smelting.

This group has four classes:

- 070801 Iron and steel (e.g. ingots, bars, rods, shapes, sections)
- 070802 Aluminium
- 070803 Precious metals (e.g. refined bullion, wire, strip)
- 070899 Other non-ferrous metals (e.g. copper, zinc)

Exclusions: R&D directed towards alumina production and beneficiation of aluminium ores is included in Group 040300 First Stage Treatment of Ores and Minerals.

GROUP 070900 CERAMICS, GLASS AND INDUSTRIAL MINERAL PRODUCTS

This group covers R&D directed towards the manufacture of ceramics, glass and glass products and industrial mineral products, including clay, cement and concrete products.

It includes R&D directed towards the manufacture of plaster and non-metallic mineral products.

This group has five classes:

- 070901 Ceramics
- 070902 Structural glass and glass products
- 070903 Clay products
- 070904 Cement and concrete products
- 070999 Ceramics, glass and industrial mineral products n.e.c.

Exclusions: R&D directed towards testing the performance and durability of building materials is included in Group 080300 Materials Performance and Processes, Subdivision 080000 Construction.

GROUP 071000 FABRICATED METAL PRODUCTS

This group covers R&D directed towards the manufacture of structural and sheet metal products, castings, machined and semi-finished fabricated metal products. Examples of these product are structural steel, architectural aluminium and metal products, metal containers, sheet metal products including hand tools, general hardware, springs, nuts, rivets and non-ferrous pipe fittings.

This group has six classes:

- 071001 Structural metal products
- 071002 Sheet metal products
- 071003 Semi-finished products
- 071004 Castings
- 071005 Machined products
- 071099 Fabricated metal products n.e.c.

Exclusions: R&D directed towards the prefabrication of metal buildings and manufacture of sheet metal furniture is included in Group 079900 Other Manufactured Products.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 071100 TRANSPORT EQUIPMENT

This group covers R&D directed towards the manufacture of motor vehicles, railway rolling stock, aeroplanes, ships, boats and other transport equipment not elsewhere classified.

It includes R&D directed towards the manufacture of components and repair of transport equipment included in this classification.

This group has five classes:

- 071101 Automotive equipment
- 071102 Rail equipment
- 071103 Nautical equipment
- 071104 Aerospace equipment
- 071199 Transport equipment n.e.c.

GROUP 071200 COMPUTER HARDWARE AND ELECTRONIC EQUIPMENT

This group covers R&D directed towards the manufacture of computer hardware and electronic equipment used for offices, computing and integrated systems and computer peripherals.

It includes R&D directed towards the manufacture of business machines such as photocopiers, typewriters or calculators.

This group has seven classes:

- 071201 Integrated circuits and devices
- 071202 Modules - special and attached processors
- 071203 Modules - other processes
- 071204 Electronic office equipment
- 071205 Computer equipment
- 071206 Integrated systems
- 071299 Computer hardware and electronic equipment n.e.c.

Exclusions: R&D directed towards developing computer software and the provision of programming services is included in Group 100100 Computer Software and Services.

GROUP 071300 COMMUNICATION EQUIPMENT

This group covers R&D directed towards the manufacture of communication equipment, including that used for broadcasting, electronic data, voice or image transmission, network transmission and switching equipment.

This group has seven classes:

- 071301 Broadcasting equipment
- 071302 Postal equipment
- 071303 Voice equipment
- 071304 Data, image and text equipment
- 071305 Network transmission equipment
- 071306 Network switching equipment
- 071399 Communication equipment n.e.c.

GROUP 071400 INSTRUMENTATION

This group covers R&D directed towards the manufacture of scientific, medical and industrial instrumentation, photographic equipment and other instrumentation.

This group has five classes:

- 071401 Scientific instrumentation
- 071402 Medical instrumentation
- 071403 Industrial instrumentation
- 071404 Photographic equipment
- 071499 Instrumentation n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 071500 MACHINERY AND EQUIPMENT

This group covers R&D directed towards the manufacture of machinery and equipment and towards the manufacture of household appliances and other electrical equipment not classified elsewhere.

This group has six classes:

- 071501 Agricultural machinery and equipment
- 071502 Mining machinery and equipment
- 071503 Appliances and electrical machinery and equipment
- 071504 Industrial machinery and equipment
- 071505 Construction machinery and equipment
- 071599 Machinery and equipment n.e.c.

GROUP 079900 OTHER MANUFACTURED PRODUCTS

This group covers R&D directed towards the manufacture of tobacco products, furniture, prefabricated buildings and other products not classified elsewhere.

This group has four classes:

- 079901 Tobacco products
- 079902 Furniture
- 079903 Prefabricated buildings
- 079999 Manufactured products n.e.c.

SUBDIVISION 080000 CONSTRUCTION

This subdivision covers R&D directed towards construction. It includes R&D directed towards improving the use and performance of building materials, the processes for which they are used and the functions of engineering, planning, design, management and building services in the construction industry.

This subdivision includes R&D directed towards testing on construction sites the performance, durability and life cycle of materials used in the construction industry; the planning component of the construction up to the stage of developing sketch plans; design component, specifically turning sketch plans into working drawings and specifications; the development and supply of components and materials which are assembled and placed on site to form buildings, but manufactured off-site; and the design, supply and installation of building services.

R&D directed towards safety in construction projects is also included in this subdivision.

This subdivision has five groups:

- 080100 Planning
- 080200 Design
- 080300 Materials Performance and Processes
- 080400 Construction Processes
- 080500 Building Management and Services

Exclusions: R&D directed towards the (a) manufacture of materials used in construction is included in the appropriate groups in Subdivision 070000 Manufacturing; (b) environmental health considerations in construction is included in Subdivision 130000 Health, Group 130200 Public Health; and (c) environmental management aspects of construction is included in Subdivision 170000 Environmental Aspects of Economic Development, Group 170700 Construction.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 080100 PLANNING

This group covers R&D directed towards improving the activities associated with the development of construction projects to the sketch plan stage, including urban planning, environmental impact studies, investigation of alternatives, market surveys, information gathering and assessment, geotechnical considerations, conceptual architectural design and project funding.

This group has five classes:

- 080101 Housing
- 080102 Commercial
- 080103 Civil
- 080104 Industrial
- 080199 Other

GROUP 080200 DESIGN

This group covers R&D directed towards improving the associated activities which turn a project sketch plan into detailed architectural and engineering designs and specifications and towards the development of building regulations and design codes.

R&D directed towards quantity surveying is also included in this group.

This group has five classes:

- 080201 Housing
- 080202 Commercial
- 080203 Civil
- 080204 Industrial
- 080299 Other

GROUP 080300 MATERIALS PERFORMANCE AND PROCESSES

This group covers R&D directed towards testing the performance, durability and life cycle of components and materials which are delivered or assembled on construction sites. The testing of performance, durability or life cycle of building materials on existing buildings is also included in this group. Examples of building materials on which testing is carried out are steel elements and assemblies, concrete, reinforcing bars, precast concrete elements, bricks, blocks, plasterboard, roof tiles, timber and plastic and aluminium components, such as windows, frames and piping.

This group has six classes:

- 080301 Stone, ceramics and clay materials
- 080302 Cement and concrete materials
- 080303 Polymeric materials (e.g. paints)
- 080304 Timber materials
- 080305 Metals (composites, coatings, bonding, etc.)
- 080399 Other

GROUP 080400 CONSTRUCTION PROCESSES

This group covers R&D directed towards improving the associated processes or activities which translate plans and specifications into a finished building.

This group includes R&D directed towards the tendering process, contractual matters, construction management, quality assurance, the actual construction and towards the health and safety aspects in construction.

This group has five classes:

- 080401 Housing
- 080402 Commercial
- 080403 Civil
- 080404 Industrial
- 080499 Other

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 080500 BUILDING MANAGEMENT AND SERVICES

This group covers R&D directed towards the design and installation of building services such as lifts, air-conditioning, plumbing, electrical services, communication networks, security and fire alarm systems. R&D directed towards the maintenance or servicing of these services is also included in this group.

This group includes R&D directed towards site demolition, building refurbishment and other construction trade services (e.g. concreting, tiling) not elsewhere classified.

This group has five classes:

- 080501 Housing
- 080502 Commercial
- 080503 Civil
- 080504 Industrial
- 080599 Other

SUBDIVISION 090000 TRANSPORT

This subdivision covers R&D directed towards improving the efficiency and safety of transport systems for moving freight, passengers or livestock by ground, water, air or any combinations of these (e.g. sea-air transport) or by any other means.

This subdivision includes R&D directed towards oceanic currents and processes that impinge on sea safety or navigation.

This subdivision has four groups:

- 090100 Ground Transport
- 090200 Water Transport
- 090300 Air Transport
- 099900 Other Transport

Exclusions: R&D directed towards (a) the transportation of plants and primary plant products, livestock and primary livestock products is included in Subdivision 020000 Plant Production and Plant Primary Products and Subdivision 030000 Animal Production and Animal Primary Products respectively; (b) transport systems as an integral part of urban planning is included in Subdivision 080000 Construction; and (c) the environmental management aspects of transport operation is included in Subdivision 170000 Environmental Aspects of Economic Development, Group 170800 Transport.

GROUP 090100 GROUND TRANSPORT

This group covers R&D directed towards road passenger or freight transport, long or short distance bus transport (incl. tramway), railway transport, taxi and other road transport.

This group includes R&D directed towards services to ground transport such as parking services, toll bridge, weighbridge, container terminals and punt operations and towards improving road safety.

This group has four classes:

- 090101 Road safety
- 090102 Other road transport
- 090103 Rail transport
- 090199 Ground transport n.e.c.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 090200 WATER TRANSPORT

This group covers R&D directed towards international, coastal or inland water transport.

This group includes R&D directed towards services to water transport such as stevedoring, water terminals, ports and other services to water transport and towards oceanic currents and processes in so far as they impinge on sea safety or navigation.

This group has three classes:

- 090201 International sea transport
- 090202 Coastal water transport
- 090203 Inland water transport

GROUP 090300 AIR TRANSPORT

This group covers R&D directed towards international and domestic air transport for passenger, freight and livestock.

It includes R&D directed towards other non-scheduled air and space transport.

This group has two classes:

- 090301 Air transport
- 090302 Space transport

GROUP 099900 OTHER TRANSPORT

This group covers R&D directed towards multi-modal transport and intermodal materials handling.

R&D directed towards pipeline transport and other transport not elsewhere classified is also included in this group.

This group has three classes:

- 099901 Multimodal transport
- 099902 Intermodal materials handling
- 099999 Transport n.e.c.

SUBDIVISION 100000 INFORMATION AND COMMUNICATION
SERVICES

This subdivision covers R&D directed towards the support and provision of information and communication services (incl. telecommunication services), computer programming or software services, library and library database services, presentations of educational displays for museums, art galleries or other such institutions.

This subdivision includes R&D directed towards printing and publishing newspapers and the provision, processing, presentation or dissemination of information not classified elsewhere.

This subdivision has three groups:

- 100100 Computer Software and Services
- 100200 Other Information Services
- 100300 Communication Services

Exclusions: R&D directed towards the (a) development or manufacture of computer hardware or electronic equipment (incl. assembly of components) is included in Group 071200 Computer Hardware and Electronic Equipment, Subdivision 070000 Manufacturing; and (b) development or manufacture of communication equipment (incl. assembly of components) is also included in Subdivision 070000 Manufacturing, Group 071300 Communication Equipment.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 100100 COMPUTER SOFTWARE AND SERVICES

This group covers R&D directed towards the provision of computer programming or software services which has general purpose application.

This group includes R&D directed towards programming or development of computer software, including application packages, application tools, systems utilities or information processing services.

This group has four classes:

- 100101 Application packages
- 100102 Application tools and system utilities
- 100103 Information processing services
- 100199 Computer software and services n.e.c.

Exclusions: R&D directed towards computer programming or software services which is specific to other socio-economic objectives is included in other appropriate groups, e.g. television programming is included in Group 100300 Communication Services.

GROUP 100200 OTHER INFORMATION SERVICES

This group covers R&D directed towards the provision of other information services not elsewhere classified.

It includes R&D directed towards libraries, library data bases and information processing and the presentation of information (incl. displays) in libraries, museums and art galleries, educational centres and similar facilities and other information services not elsewhere classified.

This group has two classes:

- 100201 Library and related information services
- 100299 Information services n.e.c.

Exclusions: R&D directed towards news or media related information services is included in Group 100300 Communication Services.

GROUP 100300 COMMUNICATION SERVICES

This group covers R&D directed towards telecommunications, postal and courier services, television and radio broadcasting, media services, newspaper publishing and other news dissemination.

This group has four classes:

- 100301 Broadcasting
- 100302 Telecommunications
- 100303 Postal communications
- 100399 Communication services n.e.c.

Exclusions: R&D directed towards printing or publishing books and other periodicals (except newspapers) is included in Group 070300 Wood, Wood Products and Paper.

SUBDIVISION 110000 COMMERCIAL SERVICES

This subdivision covers R&D directed towards the provision of commercial services to all areas of economic and social development.

This subdivision includes R&D directed towards the provision of electricity and gas services to consumers, provision of water, sewerage and drainage services; management and recycling of wastes or waste products as a discrete process or as a service to consumers; wholesale and retail trade services, finance, property and business services; recreational and personal services and other commercial services not elsewhere classified.

This subdivision has five groups:

- 110100 Electricity, Gas and Water Services and Utilities
- 110200 Waste Management and Recycling
- 110300 Wholesale and Retail Trade
- 110400 Finance, Property and Business Services
- 119900 Other Commercial Services

Exclusions: R&D directed towards the (a) transformation of energy into electricity and gas and conservation or efficient use of energy is included in Subdivision 060000 Energy Supply; and (b) management or recycling of industrial wastes as an integral process within an industry to prevent impacts of economic development on the environment is included in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 110100 ELECTRICITY, GAS AND WATER SERVICES AND UTILITIES

This group covers R&D directed towards the provision of electricity, gas and water services and utilities to industrial and commercial premises and households.

This group includes R&D directed towards the following:

- . provision of electricity supply to users as consumers (incl. provision of customer and advisory services);
- . repair and maintenance of electricity transmission and power facilities;
- . provision of gas supply to users as consumers (incl. provision of customer and advisory services);
- . repair and maintenance of gas mains;
- . provision of gas supplies to consumers in bottle or bulk (wholesale or retail);
- . provision of water services and utilities, stormwater drainage and sewerage treatment concerned with water supply;
- . storage, purification or distribution of water;
- . repair and maintenance of water related facilities services; and
- . operation of irrigation systems.

This group has three classes:

- 110101 Electricity services and utilities
- 110102 Gas services and utilities
- 110103 Water services and utilities

Exclusions: R&D directed towards the (a) manufacture of gases is included in Group 060100 Energy Transformation; (b) transmission of electricity and distribution of manufactured gas (i.e.transportation) through a system of mains, including pipelines operated on own account is included in Group 060300 Energy Distribution; and (c) construction of new electricity transmission or power facilities, new gas pipelines, dams, water mains and pumping stations is included in Group 080400 Construction Processes.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 110200 WASTE MANAGEMENT AND RECYCLING

This group covers R&D directed towards management and recycling wastes or waste products considered as a discrete process or as a service to consumers.

R&D directed towards managing sewerage wastes, sewerage treatment (other than concerned with water supply) or towards handling and processing wastes (incl. toxic waste) and scrap is included in this group.

This group has three classes:

- 110201 Waste management
- 110202 Recycling
- 110299 Other

Exclusions: R&D directed towards (a) the industrial processing of wastes and scrap to manufacture new products is included in the appropriate groups in Subdivision 070000 Manufacturing; (b) sewerage treatment concerned with water supply is included in Group 110100 Electricity, Gas and Water Services and Utilities; and (c) waste management or recycling as an integral process within an industry to prevent impacts of economic development on the environment is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 110300 WHOLESALE AND RETAIL TRADE

This group covers R&D directed towards wholesale and retail trade services.

It includes R&D directed towards direct marketing.

This group has two classes:

- 110301 Wholesale trade.
- 110302 Retail trade

Exclusions: R&D directed towards wholesaling or retailing gas supplies to consumers in bottles or in bulk is included in Group 110100 Electricity, Gas and Water Services and Utilities.

GROUP 110400 FINANCE, PROPERTY AND BUSINESS SERVICES

This group covers R&D directed towards the development and provision of the following services:

- . finance and investment services including banks, building societies, credit unions, money market dealing, and other services to finance;
- . insurance including life insurance, superannuation funds, health and general insurance and services to insurance;
- . property services including real estate agents, property operators and developers; and
- . other business services including legal and accounting services, advertising, graphic design, market research, business consultancy, secretarial services and plant leasing and hiring.

This group has three classes:

- 110401 Finance and investment services
- 110402 Insurance services
- 110403 Property and business services

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 119900 OTHER COMMERCIAL SERVICES

This group covers R&D directed towards the development and provision of commercial services not elsewhere classified.

It includes R&D directed towards the following:

- . recreational services mainly of a commercial nature (e.g. casinos);
- . entertainment, hospitality and amusement services (e.g. motels, taverns, restaurants);
- . the provision of commercial security services (incl. alarm and surveillance services);
- . other commercial services such as video hire outlets, hiring of personal and household goods, laundries and dry cleaners, photography services, funeral parlours, crematoria and cemeteries; and
- . other business services not classified elsewhere.

This group has four classes:

- 119901 Recreational services
- 119902 Tourism services
- 119903 Commercial security services
- 119999 Commercial services n.e.c.

Exclusions: R&D directed towards (a) security services or surveillance systems for military purposes is included in Group 010100 Defence; and for corrective purposes is included in Group 150200 Public Services; (b) museums and art galleries is included in Group 100200 Other Information Services; and (c) music and theatre production, sport and services to sport activities (incl. sporting clubs) and recreational and amusement services mainly of non-commercial nature (e.g. parks, botanical gardens) is included in Group 150300 Art, Sport and Recreation.

SUBDIVISION 120000 ECONOMIC FRAMEWORK

This subdivision covers R&D directed towards the understanding of the economic framework of development or the application of economic theory to assist development.

This subdivision includes R&D directed towards understanding macroeconomic, microeconomic, international trade, management and productivity issues.

It also includes R&D directed towards developing measurement standards and calibrations services which make a contribution to economic framework.

This subdivision has six groups:

- 120100 Macroeconomic Issues
- 120200 Microeconomic Issues
- 120300 International Trade Issues
- 120400 Management and Productivity Issues
- 120500 Measurement Standards and Calibration Services
- 129900 Other Economic Issues

Exclusions: R&D directed towards economic approaches to manage environmental resources is included in Subdivision 170000 Environmental Aspects of Economic Development, Group 171100 Environmental Economic Framework.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 120100 MACROECONOMIC ISSUES

This group covers R&D directed towards the understanding of economic relations at the macroeconomic level, including fiscal policy, monetary policy, exchange rates, balance of payments, income policy, taxation and other macroeconomic issues.

This group has seven classes:

- 120101 Fiscal policy
- 120102 Monetary policy
- 120103 Exchange rates
- 120104 Balance of payments
- 120105 Income policy
- 120106 Taxation
- 120199 Macroeconomic issues n.e.c.

GROUP 120200 MICROECONOMIC ISSUES

This group covers R&D directed towards understanding economic relations at the microeconomic level, including effects on taxation, consumption, industrial organisations, industry policy, industry cost and structure and other microeconomic issues.

This group has six classes:

- 120201 Microeconomic effects of taxation
- 120202 Consumption
- 120203 Industrial organisations
- 120204 Industry policy
- 120205 Industry costs and structure
- 120299 Microeconomic issues n.e.c.

GROUP 120300 INTERNATIONAL TRADE ISSUES

This group covers R&D directed towards understanding issues relating to international trade, including trade policy, assistance and protection and international agreements on trade.

This group has four classes:

- 120301 Trade policy
- 120302 Assistance and protection
- 120303 International agreements on trade
- 120399 International trade issues n.e.c.

GROUP 120400 MANAGEMENT AND PRODUCTIVITY ISSUES

This group covers R&D directed towards management and productivity issues.

It includes R&D directed towards marketing and industrial relations.

This group has four classes:

- 120401 Marketing
- 120402 Industrial relations
- 120403 Management
- 120404 Productivity

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 120500 MEASUREMENT STANDARDS AND CALIBRATION SERVICES

This group covers R&D directed towards the development and provision of measurement and calibration standards or services for defence, manufacturing and the service industries.

This group has four classes:

- 120501 Defence standards and calibrations
- 120502 Manufacturing standards and calibrations
- 120503 Service industries standards and calibrations
- 120599 Measurement standards and calibration services n.e.c.

Exclusions: R&D directed towards the manufacture of scientific equipment or other instrumentation is included in Group 071400 Instrumentation.

GROUP 129900 OTHER ECONOMIC ISSUES

This group covers R&D directed towards understanding other economic issues in the economic framework or towards a contribution to economic framework not elsewhere classified.

It has the one Class 129999 Other economic issues.

DIVISION 3 SOCIETY

This division covers R&D directed towards individual and community well-being or towards general social development.

It includes R&D directed towards the improvement and protection of human health, including clinical treatment, development and provision of public health and health support services.

It includes R&D directed towards the provision of education and training.

This division also includes R&D directed towards social development and community services, including the provision of welfare and public services (other than those concerned with economic development); and towards arts, sport and culture.

It also includes R&D directed towards international relations and the understanding of ethical issues relating to social development.

This division has three subdivisions:

- 130000 Health
- 140000 Education and Training
- 150000 Social Development and Community Services

Exclusions: R&D directed towards (a) health and safety issues associated with industrial activities is included in Division 2 Economic Development, e.g. safety in construction industry, is included in Subdivision 080000 Construction; (b) the resolution of social and health issues in economic development, e.g. industrial relations and working conditions, is included in Subdivision 120000 Economic Framework, Group 120400 Management and Productivity Issues; and (c) education and training specifically to acquire knowledge, appreciation and understanding of the environment is included in Subdivision 160000 Environmental Knowledge.

SUBDIVISION 130000 HEALTH

This subdivision covers R&D directed towards human health, including the understanding and treatment of clinical diseases and conditions and the provision of public health and associated support services.

This subdivision has three groups:

- 130100 Clinical (Organs, Diseases and Conditions)
- 130200 Public Health
- 130300 Health and Support Services

Exclusions: R&D directed towards (a) understanding the impact of the environment on human health is included in Subdivision 160000 Environmental Knowledge; and (b) the protection of the social environment (incl. community health) from impact of economic activities is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 130100 CLINICAL (ORGANS, DISEASES AND CONDITIONS)

This group covers R&D directed towards the clinical aspects of health and medicine.

It includes R&D directed towards organ diseases or conditions and mainly aimed at gaining understanding of causes, effects and treatment of specific conditions.

This group has nineteen classes:

- 130101 Infectious diseases
- 130102 Immune system and allergy
- 130103 Blood disorders
- 130104 Neurological disorders
- 130105 Endocrine diseases (incl. diabetes)
- 130106 Cardiovascular diseases
- 130107 Inherited diseases
- 130108 Cancer and related disorders
- 130109 Surgical methods and procedures
- 130110 Respiratory diseases (incl. asthma)
- 130111 Hearing, vision and speech
- 130112 Oro-dental
- 130113 Digestive system
- 130114 Arthritis, bone and joint disorders
- 130115 Kidney diseases
- 130116 Reproductive medicine
- 130117 Skin and related conditions
- 130118 Other organs, diseases and conditions
- 130199 Clinical health not specific to particular organs, diseases and conditions

Exclusions: R&D directed towards preventive medicine and life-style impact on health, the effect of social conditions (e.g. poverty) on the community health; and the social aspects of health (e.g. food safety, nutrition) is included in Group 130200 Public Health.

GROUP 130200 PUBLIC HEALTH

This group covers R&D directed towards community health or the health of discrete community groups, e.g. aged persons. The primary focus of R&D in this group is on the social and community aspects of health and medicine.

It includes R&D directed towards community support for particular conditions or for discrete groups as they relate to health and medical conditions.

This group also includes R&D directed towards preventive medicine, environmental health (e.g. health factors in constructing an airport) and other broad aspects of public health.

This group has seventeen classes:

- 130201 Women's health
- 130202 Health related to ageing
- 130203 Child health

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GROUP 130200 PUBLIC HEALTH -- continued

- 130204 Aboriginal health
- 130205 Substance abuse
- 130206 Occupational health (excl. economic development aspects)
- 130207 Environmental health
- 130208 Mental health
- 130209 Disease distribution and transmission
- 130210 Preventive medicine
- 130211 Dental health
- 130212 Nutrition
- 130213 Food safety
- 130214 Health status (e.g. indicators of "well-being")
- 130215 Social structure and health
- 130216 Behaviour and health
- 130299 Public health n.e.c.

Exclusions: R&D directed towards (a) understanding the causes, effects and treatment of specific clinical conditions is included in Group 130100 Clinical (Organs, Diseases and Conditions); (b) the evaluation of health care programs and policies is included in Group 130300 Health and Support Services; (c) acquiring knowledge or understanding the impact of the environment on people and vice versa is included in Subdivision 160000 Environmental Knowledge; and (d) protection of community health from impact of economic development is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 130300 HEALTH AND SUPPORT SERVICES

This group covers R&D directed towards community support (incl. community health education and training) in health and medicine. The primary focus of R&D in this group is on the promotion of health education and the evaluation of health programs.

This group includes R&D directed towards health care infrastructure support.

This group has nine classes:

- 130301 Health education and promotion
- 130302 Nursing
- 130303 Occupational, speech and physiotherapy
- 130304 Palliative care
- 130305 Diagnostic methods
- 130306 Evaluation of health outcomes
- 130307 Health policy evaluation
- 130308 Health policy economic outcomes
- 130399 Health and support services n.e.c.

Exclusions: R&D directed towards (a) understanding the causes, effects and the treatment of specific clinical conditions is included in Group 130100 Clinical (Organs, Diseases and Conditions); and (b) health as it pertains to the general community or discrete groups (e.g. aged persons) is included in Group 130200 Public Health.

SUBDIVISION 140000 EDUCATION AND TRAINING

This subdivision covers R&D directed towards general education and training.

This subdivision has six groups:

- 140100 Early Childhood and Primary Education
- 140200 Secondary Education
- 140300 Higher Education
- 140400 Technical and Further Education
- 140500 Special Education
- 149900 Other Education

Exclusions: R&D directed towards (a) public health education is included in Group 130300 Health and Support Services; and (b) understanding the environment is included in Subdivision 160000 Environmental Knowledge.

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GROUP 140100 EARLY CHILDHOOD AND PRIMARY EDUCATION

This group covers R&D directed towards early childhood and primary school education.

This group has two classes:

- 140101 Early childhood education
- 140102 Primary education

GROUP 140200 SECONDARY EDUCATION

This group covers R&D directed towards high school or secondary education.

It has the one Class 140201 Secondary education.

GROUP 140300 HIGHER EDUCATION

This group covers R&D directed towards tertiary or post-secondary education.

It has the one Class 140301 Higher education.

Exclusions: R&D directed towards (a) TAFE colleges operation is included in Group 140400 Technical and Further Education and (b) the provision of continuing education is included in Group 149900 Other Education.

GROUP 140400 TECHNICAL AND FURTHER EDUCATION

This group covers R&D directed towards technical education and TAFE colleges operation.

It has the one Class 140401 Technical and further education.

GROUP 140500 SPECIAL EDUCATION

This group covers R&D directed towards special education for the handicapped or disadvantaged children or persons within the public or private school systems or in the workforce.

This group also includes R&D directed towards the education and training of gifted children and selected social groups such as the Aboriginals and Torres Strait Islanders, non-English speaking persons and geographically isolated children.

This group has three classes:

- 140501 Handicapped education
- 140502 Disadvantaged education
- 140599 Special education n.e.c.

GROUP 149900 OTHER EDUCATION

This group covers R&D directed towards the other areas of education and training, including occupational training, continuing education, education policy and other education issues not elsewhere classified.

This group has four classes:

- 149901 Occupational training
- 149902 Continuing education
- 149903 Education policy
- 149999 Education and training n.e.c.

Exclusions: R&D directed towards TAFE colleges operation is included in Group 140400 Technical and Further Education.

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SUBDIVISION 150000 SOCIAL DEVELOPMENT AND COMMUNITY SERVICES

This subdivision covers R&D directed towards community and social services (incl. welfare) to individuals or community groups (e.g. disabled, unemployed) and towards social justice and general equity.

This subdivision also includes R&D directed towards the arts and related cultural activities, sport and recreational activities; international relations (e.g. diplomacy); and ethical issues of concern to social, scientific or technological development.

This subdivision has six groups:

- 150100 Community Services
- 150200 Public Services
- 150300 Art, Sport and Recreation
- 150400 International Relations
- 150500 Ethical Issues
- 159900 Other Social Development and Community Services

Exclusions: R&D directed towards (a) recreational services mainly of commercial nature (e.g. casino, cinema) is included in Subdivision 110000 Commercial Services, Class 119901 Recreation services; and (b) the provision of community health services and their associated support services is included in the appropriate groups in Subdivision 130000 Health.

GROUP 150100 COMMUNITY SERVICES

This group covers R&D directed towards the provision or delivery of community and welfare services to individuals or to defined community groups such as the disabled, unemployed, aged persons and single parents.

This group has nine classes:

- 150101 Unemployment (excl. industrial relations, occupational health)
- 150102 Aboriginal development and welfare
- 150103 Aged persons development and welfare
- 150104 Carers development and welfare (i.e. carers for the aged, disabled)
- 150105 Disabled persons development and welfare
- 150106 Family development and welfare
- 150107 Migrant development and welfare
- 150108 Youth/child development and welfare
- 150199 Community services n.e.c.

Exclusions: R&D directed towards (a) community health education is included in Group 130300 Health and Support Services; and (b) social justice is included in Group 150200 Public Services.

GROUP 150200 PUBLIC SERVICES

This group covers R&D directed towards social justice and general equity.

It includes R&D directed towards consumer affairs, law reform, law enforcement, corrective services and other public services not elsewhere classified.

This group has five classes:

- 150201 Consumer affairs
- 150202 Law reform
- 150203 Law enforcement
- 150204 Corrective services
- 150299 Public services n.e.c.

Exclusions: R&D directed towards the provision of social and welfare services to the community or defined community groups is included in Group 150100 Community Services.

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GROUP 150300 ART, SPORT AND RECREATION

This group covers R&D directed towards the arts, artistic endeavours and related cultural activities.

It includes R&D directed towards:

- . sport and physical endeavour or other recreation activities not elsewhere classified;
- . visual arts, painting, sculpture, dance, drama, the performing arts and music;
- . music and theatre production, sound recording and the provision of services to the arts;
- . the operation of race tracks, sport grounds and facilities and the provision of services to sport (incl. sporting clubs); and
- . the operation of parks, botanical and zoological gardens.

This group has three classes:

- 150301 Artistic endeavours
- 150302 Sport
- 150303 Recreation

Exclusions: R&D directed towards (a) museums and art galleries is included in Group 100200 Other Information Services; (b) cinemas or motion picture exhibition is included in Group 119900 Other Commercial Services, Class 119901 Recreational Services; (c) entertainment and amusement services in the hospitality industry is included in Class 119902 Tourism services; and (d) motion picture (incl. video) production and distribution is included in Class 119999 Commercial Services n.e.c.

GROUP 150400 INTERNATIONAL RELATIONS

This group covers R&D directed towards improving international relations.

This group has three classes:

- 150401 International relations (e.g. diplomacy, peace)
- 150402 International aid and issues to benefit other countries
- 150499 International relations n.e.c.

Exclusions: R&D directed towards (a) international trade or international economic relations is included in Group 120300 International Trade Issues; and (b) international environmental protection issues is included in Group 180100 Environmental Management.

GROUP 150500 ETHICAL ISSUES

This group covers R&D directed towards the understanding and analyses of ethical issues of concern to social, scientific or technological development, the application of ethical or moral theory to such issues and the development of codes of behaviour or standards of practice for businesses, professions and trades.

It includes R&D in bioethics or biomedical ethics.

R&D directed towards environmental ethics is also included in this group (Class 150599 Ethical issues n.e.c.).

This group has three classes:

- 150501 Bioethics
- 150502 Business ethics
- 150599 Ethical issues n.e.c.

Exclusions: R&D directed towards ethics, moral theory or theories of no immediate value to social, scientific or technological development is included in Group 200200 Humanities.

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GROUP 159900 OTHER SOCIAL DEVELOPMENT AND COMMUNITY SERVICES

This group covers R&D directed towards social development and community services which are not elsewhere classified.

It has the one Class 159999 Other social development and community services.

DIVISION 4 ENVIRONMENT

This division covers R&D directed towards enhancing knowledge, awareness, the understanding and protection of the environment. The environment for purposes of this classification refers to 'all surroundings of human beings, whether affecting human beings as individuals or in social groupings'. Source: Environmental Protection (Impact of Proposals) Act 1975.

This division includes R&D directed towards enhancing knowledge about the physical environment (e.g. climate and atmosphere, ocean, water, land), nature conservation and the social environment and understanding the causes and effects of processes or phenomena (incl. pollution) which are capable of or known to contribute to impact on the physical environment.

It includes R&D directed towards understanding the social environment, i.e. the human or social impacts on the environment or the environmental impacts on human and social well-being.

This division also includes R&D directed towards protecting the environment (incl. protecting the physical and social environment); and the development of approaches to improve environmental management.

This division has three subdivisions:

- 160000 Environmental Knowledge
- 170000 Environmental Aspects of Economic Development
- 180000 Environmental Management and Other Aspects

Exclusions: R&D directed towards the provision of services to improve individual and community health is included in Division 3 Society, Group 130200 Public Health, Class 130207 Environmental health.

SUBDIVISION 160000 ENVIRONMENTAL KNOWLEDGE

This subdivision covers R&D directed towards enhancing the knowledge, awareness and understanding of the environment.

This includes R&D directed towards understanding the physical environment, including climate and atmosphere, oceans, water resources, various types of land environment, fauna and flora and their associated ecosystems (e.g. terrestrial, freshwater or marine); human settlements, natural and cultural heritage (e.g. protected areas, national parks); and environmental hazards such as floods and bush fires.

This subdivision has seven groups:

- 160100 Climate and Atmosphere
- 160200 Ocean
- 160300 Water
- 160400 Land
- 160500 Nature Conservation
- 160600 Social Environment
- 169900 Other Environmental Knowledge

Exclusions: R&D directed towards protecting the environment from the impact of economic activities is included in Subdivision 170000 Environmental Aspects of Economic Development.

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GROUP 160100 CLIMATE AND ATMOSPHERE

This group covers R&D directed towards the expansion of knowledge and understanding of the climate, atmosphere and the weather. Climate for the purpose of this classification refers to a long term average condition of the weather in a given area.

This group also includes R&D directed towards understanding the changes in the upper atmosphere (stratosphere - between 10 and 50 km altitude), ozone concentrations and their effects.

This group has six classes:

- 160101 Climate change (incl. causes and results of enhanced greenhouse effect and other human-induced trends in climate such as ozone depleting substances)
- 160102 Climate variability
- 160103 Weather
- 160104 Atmospheric composition
- 160105 Atmospheric processes (incl. chemical, physical and biological)
- 160199 Other

Exclusions: R&D directed towards ozone emission in the lower atmosphere (troposphere) or air pollution and its control is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 160200 OCEAN

This group covers R&D directed towards the expansion of knowledge and understanding of the oceans.

This group has three classes:

- 160201 Oceanic composition
- 160202 Oceanic processes (incl. chemical, physical and biological)
- 160299 Other

Exclusions: R&D directed towards the (a) understanding of oceanic currents, etc. for naval safety or navigation is included in Group 090200 Water Transport; and (b) protection of the ocean from impact of economic activities is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

GROUP 160300 WATER

This group covers R&D directed towards the expansion of knowledge, awareness and understanding of the earth's water resources.

It includes R&D directed to contaminants that may restrict or prevent the use of water for human activities.

This group has six classes:

- 160301 Groundwater
- 160302 Freshwater
- 160303 Brackish
- 160304 Inshore
- 160305 Offshore
- 160399 Other

Exclusions: R&D directed towards the management or protection of water resources from impact of economic activities is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

For purposes of this classification groundwater refers to subsurface water in the zone of saturation, including water below the water table and water occupying cavities, pores and openings in underlying rocks; freshwater refers to water found on the surface of the land such as in water courses and dams; brackish water refers to waters that have accumulated soluble salts which impairs the quality of water for various purposes including domestic consumption and agriculture; inshore refers to water within three nautical mile limit of the coast and includes waters in bays and up water courses to the point where tidal influence ceases; and offshore refers to ocean waters beyond the three nautical mile limit.

GROUP 160400 LAND

This group covers R&D directed towards the expansion of knowledge, awareness and understanding of the various types of land environment, including high country and mountains, forest and wooded lands,

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farmland both arable and permanent cropland, sparseland both permanent and the arid zone; urban land, coastal zone, mineral enclave, antarctic and sub-antarctic areas and other lands.

This group has nine classes:

- 160401 High country (incl. mountains)
- 160402 Forest and wooded lands
- 160403 Farmland (incl. arable land and permanent crop land)
- 160404 Sparseland (incl. permanent grassland and the arid zone)
- 160405 Urban areas
- 160406 Coastal zone
- 160407 Mineral enclave
- 160408 Antarctic and sub-Antarctic areas
- 160499 Other (incl. islands)

Exclusions: R&D directed towards protecting the land environment from impact of economic activities is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.

For purposes of this classification high country (incl. mountains) refers to the area including the Great Dividing Range and the Great Escarpment which are above 1000 metres in altitude. Forest land refers to an area of trees which has a foliage projective cover in the tallest stratum of more than 30% or a crown cover of more than 20% of the area and not used primarily for purposes other than forestry. It includes public and private forest, forest in national parks, forest roads and streams, forest nurseries, plantations primarily used for forestry purposes and areas of windbreaks and shelterbelts sufficiently large to be managed as forest. It excludes isolated groups of trees and city parks and gardens. Wooded land refers to an area of trees and/or shrubs which has a foliage projective cover in the tallest stratum of between 10% to 30% or a crown cover of between 10% to 20% of the area; farmland refers to (a) arable land which is land under crops such as cereals, root crops, industrial crops (e.g. cotton, tobacco, oilseeds), vegetables, flowers and ornamental plants; and (b) permanent cropland which is land under orchards, vineyards, olives, etc. Source: OECD Environment Data Compendium (1991). Sparseland (incl. permanent grassland and the arid zone) refers to areas with a population density of less than 1000 people per 8000 km². It includes the arid zone (which receives less than 250 mm of rain a year in the south and 350 mm in the north) as well as the permanent grasslands or rangelands where sheep or cattle graze on native vegetation. Source: D. Cocks (1992) Use with Care, U&NSW Press. Urban areas refers to areas where most Australians live, i.e. 92% of people live within 14% of the land area of Australia at an average population density of 13 people/km². Coastal zone refers to an area within 150 km of the coastline. Mineral enclave refers to areas where mining is occurring. Antarctic (incl. subantarctic) refers to areas south of latitude 50°S, namely Antarctica, Heard Island, Macdonald Island and Macquarie Island.

GROUP 160500 NATURE CONSERVATION

This group covers R&D directed towards the expansion of knowledge, awareness and understanding of the fauna and flora of Australia and the Australian ecosystems, including terrestrial, freshwater, marine, estuarine and other ecosystems.

This group includes R&D directed towards understanding biological diversity which includes all the variety of life forms (plants, animals and micro-organisms) the genes they contain and the diversity of their aquatic and terrestrial ecosystems together with the non-living components of their environment.

This group has seven classes:

- 160501 Flora
- 160502 Fauna
- 160503 Terrestrial ecosystems
- 160504 Freshwater ecosystems
- 160505 Marine ecosystems
- 160506 Estuarine ecosystems
- 160599 Other

Exclusions: R&D directed towards protecting nature from impact of economic development is included in the appropriate groups in Subdivision 170000 Environmental Aspects of Economic Development.
GROUP 160600 SOCIAL ENVIRONMENT

This group covers R&D directed towards the expansion of knowledge and understanding of the social environment.

It includes R&D directed towards understanding the surroundings of people and environmental issues pertaining to human ecology, including urban human settlements and facilities, health, well-being and safety of the population, natural and cultural heritage and other factors which contribute to their social environment.

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This group also includes R&D directed towards increasing the awareness and understanding of protected areas, world heritage areas, national parks, nature reserves, wilderness, marine reserves and environmental hazards such as drought, cyclones, floods, earthquakes and bush fires.

This group has seven classes:

- 160601 Social development
- 160602 Community services
- 160603 Education and training
- 160604 Environmental health
- 160605 Protected areas (incl. world heritage areas, national parks, conservation areas, nature reserves, scientific sites, heritage sites, wilderness areas, anthropological sites, archaeological sites, aboriginal sacred sites, marine reserves and national estate sites)
- 160606 Environmental hazards (incl. droughts, cyclones and floods, earthquakes and bush fires)
- 160699 Other

Exclusions: R&D directed towards (a) improving public and environmental health through provision of health services is included in Group 130200 Public Health; (b) community health education and training is included in Group 130300 Health and Support Services; and (c) provision of formal education through schools, universities, etc. is included in the appropriate groups in Subdivision 140000 Education and Training; and (d) education and awareness mainly for management of protected areas is included in Group 180100 Environmental Management.

GROUP 169900 OTHER ENVIRONMENTAL KNOWLEDGE

This group covers R&D directed towards enhancing knowledge, awareness and understanding of the environment not elsewhere classified.

This group has the one Class 169999 Other environmental knowledge.

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SUBDIVISION 170000 ENVIRONMENTAL ASPECTS OF ECONOMIC
DEVELOPMENT

This subdivision covers R&D directed towards, assessing, alleviating or redressing the impact of economic development on the environment and at preventing such impacts.

This subdivision has eleven groups:

- 170100 Plant Production and Plant Primary Products (Incl. Forestry)
- 170200 Animal Production and Primary Animal Products (Incl. Fishing)
- 170300 Mineral Resources (Excl. Energy)
- 170400 Energy Resources
- 170500 Energy Supply
- 170600 Manufacturing
- 170700 Construction
- 170800 Transport
- 170900 Information and Communication Services
- 171000 Commercial Services
- 171100 Environmental Economic Framework

Exclusions: R&D directed towards (a) developing measures to conserve energy is included the appropriate groups in Subdivision 050000 Energy Resources or Subdivision 060000 Energy Supply; (b) management or recycling wastes and waste product as a discrete process or as a service to consumers is included in Group 110200 Waste Management and Recycling; and (c) the effects of environmental pollution on public health is included in Group 130200 Public Health.

GROUP 170100 PLANT PRODUCTION AND PLANT PRIMARY PRODUCTS
(INCL. FORESTRY)

This group covers R&D directed towards the environmental management or protection aspects of growing plants and the production of primary plant products included in Subdivision 020000 Plant Production and Plant Primary Products.

This group has seven classes:

- 170101 Climate and atmosphere
- 170102 Ocean
- 170103 Water
- 170104 Land
- 170105 Nature conservation
- 170106 Social environment
- 170199 Other

GROUP 170200 ANIMAL PRODUCTION AND ANIMAL PRIMARY PRODUCTS
(INCL. FISHING)

This group covers R&D directed towards the environmental management or protection aspects of livestock farming and the processing, production or transportation of livestock or primary animal products included in Subdivision 030000 Animal Production and Animal Primary Products.

This group has seven classes:

- 170201 Climate and atmosphere
- 170202 Ocean
- 170203 Water
- 170204 Land
- 170205 Nature conservation
- 170206 Social environment
- 170299 Other

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GROUP 170300 MINERAL RESOURCES (EXCL. ENERGY)

This group covers R&D directed towards the environmental management or protection aspects of mining and the extraction of mineral resources (excl. energy) included in Subdivision 040000 Mineral Resources (Excl. Energy).

This group has seven classes:

- 170301 Climate and atmosphere
- 170302 Ocean
- 170303 Water
- 170304 Land
- 170305 Nature conservation
- 170306 Social environment
- 170399 Other

GROUP 170400 ENERGY RESOURCES

This group covers R&D directed towards the environmental management or protection aspects of exploration, mining, extraction, preparation and supply of energy source minerals included in Subdivision 050000 Energy Resources.

This group has seven classes:

- 170401 Climate and atmosphere
- 170402 Ocean
- 170403 Water
- 170404 Land
- 170405 Nature conservation
- 170406 Social environment
- 170499 Other

GROUP 170500 ENERGY SUPPLY

This group covers R&D directed towards the environmental management or protection aspects of production and supply of renewable energy, energy transformation and distribution included in Subdivision 060000 Energy Supply.

This group has seven classes:

- 170501 Climate and atmosphere
- 170502 Ocean
- 170503 Water
- 170504 Land
- 170505 Nature conservation
- 170506 Social environment
- 170599 Other

GROUP 170600 MANUFACTURING

This group covers R&D directed towards the environmental management or protection aspects of the manufacturing processes included in Subdivision 070000 Manufacturing.

This group has seven classes:

- 170601 Climate and atmosphere
- 170602 Ocean
- 170603 Water
- 170604 Land
- 170605 Nature conservation
- 170606 Social environment
- 170699 Other

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GROUP 170700 CONSTRUCTION

This group covers R&D directed towards the environmental management or protection aspects of construction activities included in Subdivision 080000 Construction.

This group has seven classes:

- 170701 Climate and atmosphere
- 170702 Ocean
- 170703 Water
- 170704 Land
- 170705 Nature conservation
- 170706 Social environment
- 170799 Other

Exclusions: Feasibility studies on the impact of construction on the environment is included in Group 080100 Planning.

GROUP 170800 TRANSPORT

This group covers R&D directed towards the environmental management or protection aspects of transport activities included in Subdivision 090000 Transport.

This group has seven classes:

- 170801 Climate and atmosphere
- 170802 Ocean
- 170803 Water
- 170804 Land
- 170805 Nature conservation
- 170806 Social environment
- 170899 Other

GROUP 170900 INFORMATION AND COMMUNICATION SERVICES

This group covers R&D directed towards the environmental management or protection aspects of the installation and provision of information and communication services included in Subdivision 100000 Information and Communication Services.

This group has seven classes:

- 170901 Climate and atmosphere
- 170902 Ocean
- 170903 Water
- 170904 Land
- 170905 Nature conservation
- 170906 Social environment
- 170999 Other

GROUP 171000 COMMERCIAL SERVICES

This group covers R&D directed towards the environmental management or protection aspects of the installation or provision of commercial services. It includes R&D directed towards the installation or provision of electricity, gas and water services and utilities; wholesale and retail trade services, finance, property and business services; recreation and tourism and other commercial services.

This group also includes R&D directed towards the management and recycling of wastes as integral processes to prevent environmental degradation due to economic development.

This group has seven classes:

- 171001 Climate and atmosphere
- 171002 Ocean
- 171003 Water
- 171004 Land
- 171005 Nature conservation

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GROUP 171000 COMMERCIAL SERVICES -- continued

- 171006 Social environment
- 171099 Other

Exclusions: R&D directed towards management and recycling of wastes as a discrete process or as a service to consumers is included in Group 110200 Waste Management and Recycling.

GROUP 171100 ENVIRONMENTAL ECONOMIC FRAMEWORK

This group covers R&D directed towards the economic approaches to manage environmental resources.

This group has two classes:

- 171101 Resource management issues (incl. demand, pricing, rents, conflicts)
- 171199 Other environment/economic aspects (incl. risk assessment and economic incentives for environmental protection e.g. taxes and permits)

SUBDIVISION 180000 ENVIRONMENTAL MANAGEMENT AND OTHER ASPECTS

This subdivision covers R&D directed towards environmental aspects which are not elsewhere classified. It includes R&D directed towards environmental policy and management.

This subdivision has two groups:

- 180100 Environmental Management
- 189900 Other Environmental Aspects

GROUP 180100 ENVIRONMENTAL MANAGEMENT

This group covers R&D directed towards the management of global climate, development of environmental policies, management of protected areas, control of human-induced hazards, environmental protection awareness and control of exotic species.

It includes R&D directed towards ecologically sustainable development.

This group has eight classes:

- 180101 Global climate change adaptation measures
- 180102 Environmental policy and standards
- 180103 Management of protected areas
- 180104 Control of human-induced environmental hazards (e.g. industrial accidents)
- 180105 Ecologically sustainable development implementation actions
- 180106 Environmental education and awareness
- 180107 Control of exotic species
- 180199 Other

Exclusions: R&D directed towards the expansion of knowledge and understanding of protected areas and of human impact on the environment is included in Group 160600 Social Environment.

For the purposes of this classification, ecologically sustainable development refers to 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'. (Source: National Strategy for Ecologically Sustainable Development, Commonwealth of Australia, 1992)

GROUP 189900 OTHER ENVIRONMENTAL ASPECTS

This group covers R&D efforts directed towards other environmental protection issues which are not elsewhere classified.

This group has the one Class 189999 Other environmental aspects.

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DIVISION 5 ADVANCEMENT OF KNOWLEDGE

This division covers R&D which contributes to the general advancement of knowledge.

Such R&D effort includes knowledge of the physical and natural order with the exception of that directed towards knowledge of the physical environment, the human and social dimensions (through the natural and social sciences or the humanities), or the theoretical bases of knowledge.

This division includes R&D which is predominantly 'pure basic research'.

This division has two subdivisions:

- 190000 Natural Sciences, Technologies and Engineering
- 200000 Social Sciences and Humanities

These two subdivisions within Division 5 Advancement of Knowledge correspond to the two divisions in the Field of Research Classification, Division 1 - Natural Sciences, Technologies and Engineering; and Division 2 - Social Sciences and Humanities. All R&D efforts within these FOR divisions which are mainly to advance knowledge (i.e. without any specific application or looking for long term benefit other than to acquire new knowledge) are to be classified to their corresponding SEO categories within this division.

Exclusions: R&D directed towards the expansion of knowledge or awareness of the physical environment (incl. climate and atmosphere, ocean, water, land, and nature conservation) is included in Division 4 Environment, Subdivision 160000 Environmental Knowledge.

SUBDIVISION 190000 NATURAL SCIENCES, TECHNOLOGIES AND ENGINEERING

This subdivision covers pure basic research directed towards the natural sciences, technologies and engineering.

This subdivision has ten groups:

- 190100 Mathematical Sciences
- 190200 Physical Sciences
- 190300 Chemical Sciences
- 190400 Earth Sciences
- 190500 Information, Computer and Communication Technologies
- 190600 Applied Sciences and Technologies
- 190700 General Engineering
- 190800 Biological Sciences
- 190900 Agricultural Sciences
- 191000 Medical and Health Sciences

GROUP 190100 MATHEMATICAL SCIENCES

This group covers pure basic research in the mathematical sciences which include pure mathematics, applied mathematics and statistics.

It has the one Class 190101 Mathematical sciences.

GROUP 190200 PHYSICAL SCIENCES

This group includes pure basic research in the physical sciences which are concerned with the properties of matter and energy or the action of energy on matter.

It also includes pure basic research in astronomical sciences and all branches of physics.

It has the one Class 190201 Physical Sciences.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 190300 CHEMICAL SCIENCES

This group includes pure basic research in the chemical sciences which include physical chemistry, inorganic chemistry, organic chemistry and analytical chemistry.

It has the one Class 190301 Chemical sciences.

GROUP 190400 EARTH SCIENCES

This group covers pure basic research concerned with the earth or any part of the earth. This includes basic research in geology, physical geography, geophysics, geochemistry, hydrology, atmospheric sciences and oceanography.

It has the one Class 190401 Earth sciences.

GROUP 190500 INFORMATION, COMPUTER AND COMMUNICATION TECHNOLOGIES

This group covers pure basic research in technologies concerned with information systems, computer hardware and software and communication and broadcasting systems.

Mathematics of computing is also included in this group.

It has the one Class 190501 Information, computer and communication technologies.

GROUP 190600 APPLIED SCIENCES AND TECHNOLOGIES

This group covers pure basic research in any of the applied sciences and technologies, but may also include a significant amount of research which has applications and are not conducted mainly for the advancement of knowledge.

This group includes pure basic research in aerospace technology, manufacturing and process technologies, industrial biotechnology and food sciences, material sciences and technologies and other applied science and technologies (e.g. building science, laser and biosensor technologies).

It has the one Class 190601 Applied sciences and technologies.

GROUP 190700 GENERAL ENGINEERING

This group covers pure basic research in general engineering which includes mechanical and industrial engineering, chemical engineering, civil engineering, mining and mineral processing, electrical and electronic engineering and other engineering not elsewhere classified.

It has the one Class 190701 General engineering.

Note: As engineering is an applied field of science, it is unlikely that this group will include a significant amount of research concerned only with the advancement of knowledge.

GROUP 190800 BIOLOGICAL SCIENCES

This group covers pure basic research concerned with life and the living organisms.

It includes research in biochemistry, genetics, molecular biology and biotechnology, microbiology, botany, zoology, ecology and marine biology.

It has the one Class 190801 Biological sciences.

Exclusions: Pure basic research in (a) biological science mainly directed towards the primary production of plants and livestock (incl. fish) is included in Group 190900 Agricultural Sciences; and (b) medical sciences is included in Group 191000 Medical and Health Sciences.

AUSTRALIAN STANDARD RESEARCH CLASSIFICATION
SOCIO-ECONOMIC OBJECTIVE

GROUP 190900 AGRICULTURAL SCIENCES

This group covers pure basic research in the agricultural sciences which includes research into soil and water, crop and pasture, horticulture, animal husbandry, veterinary science, forestry, fishery and other agricultural sciences not elsewhere classified (e.g. farm management, application of fertilisers).

It has the one Class 190901 Agricultural sciences.

GROUP 191000 MEDICAL AND HEALTH SCIENCES

This group covers pure basic research in the medical and health sciences. This includes research in immunology, medical biochemistry and clinical chemistry, medical microbiology, pharmacology, physiology, neurosciences, clinical sciences, public health and health services research and other medical and health sciences (e.g. biomechanics) not elsewhere classified.

It has the one Class 191001 Medical and health sciences.

SUBDIVISION 200000 SOCIAL SCIENCES AND HUMANITIES

This subdivision covers pure basic research in the social sciences and humanities.

This subdivision has two groups.

200100 Social Sciences
200200 Humanities

GROUP 200100 SOCIAL SCIENCES

This group covers pure basic research in the social sciences which include accounting and finance, economics, business studies, political science and public policy, architecture and urban environment, sociology, anthropology, social studies, human geography, population studies, law, psychology, education and media and communication studies.

It has the one Class 200101 Social sciences.

GROUP 200200 HUMANITIES

This group covers pure basic research in the humanities which include language and literature, historical studies, archaeology, and classical studies, arts, design studies, philosophy and religious studies.

It has the one Class 200201 Humanities.

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